PHILADELPHIA, FEBRUARY 5, 1887.

ORIGINAL LECTURES.

CLINICAL LECTURE

ON A CASE OF APOPLEXY; AND ON THE USE OF COCAINE AS A HEART-TONIC AND STIMULANT IN TYPHOID AND OTHER LOW FORMS OF FEVER.

Delivered at the Pennsylvania Hospital, December 18, 1886,

BY PROF. J. M. DA COSTA, M.D.

GENTLEMEN,—The first case to be brought before you this morning is that of an elderly man who has had an attack of apoplexy. In the first place I must state that the early history of this case is not beyond doubt, because the patient was not in a condition to give us much information. However, we have ascertained, from his friends chiefly, that this man had been healthy during the greater part of his life; he had been accustomed to the moderate use of alcohol; venereal infection is denied. His occupation is that of porter in a wholesale tobacco house. He had been in good health and felt well—so he states since he has become more conscious—until the day of admission, which was three days ago. After working as usual through the morning, at two o'clock in the afternoon he dropped a piece of paper, and he stooped to pick it up with his left hand, but found that he could not do so. A few minutes later he lost power in his left leg as he was going home, and nearly fell in the street. He states positively that he had neither headache, nausea, nor loss of consciousness either before or during the attack. We found, after he was brought here, that his mind was clouded; but since his mental condition has cleared he declares that he retained possession of his senses, and knew everything that was going on around him, although he could not speak; he was dazed rather than unconscious. He was brought here on the evening of the mishap.

Upon admission his temperature was 98° in the axilla. His face was drawn to the right, his tongue was protruded to the left. There was no marked inequality of the pupils, and no strabismus. There was almost complete loss of power in the left arm, and decided weakness of the left leg. He was very restless. His mind was clear, his voice was indistinct; he answered questions correctly, but not distinctly. Although upon admission some of his answers led us to think that he did not know very well what he was saying, yet he always made the attempt to answer questions.

Two drops of croton oil were given at once, which purged him freely. Next morning his mind was considerably clearer; he stated himself that he had had headache the night before, but none in the morning.

On the 16th his mind was clear; his pulse, which on the evening after admission was 80, with a temperature of 98°, in the morning was 78, and the temperature had risen to 99°. A faint systolic murmur was heard over the heart; the paralysis was the same as the day before. Now, finding him in this condition after having obtained all the benefit that we probably could obtain from active purgation alone, and observing that he was a vigorous man with a tense pulse, I had twenty ounces of blood drawn from his arm. The croton oil was repeated. He was also placed upon one drop of aconitè tincture every second hour. His urine was examined and found to contain a small amount of albumen.

On the evening of the day that he was so freely bled and purged his pulse was only 68 in the minute, and far less tense. This was on the 16th. Let us see how he has fared since.

Yesterday (17th) his evening temperature was 99°, and this morning it is 98.4°. His pulse, taken this morning, was only 72. His urine is still albuminous. He now answers our questions intelligently, and says that he feels quite well; he had a little headache early this morning, but none since. His tongue is still coated, and the face is drawn to the right. He can close both eyes. He has still left-sided hemiplegia. On examining his heart, I find that I can still perceive the very faint murmur heard the other day; it is followed by a distinct second sound. No swelling of the feet has been observed. His left arm is powerless; the leg can be moved more than it could the other day. The patellar tendon reflex and the ankle clonus appear completely abolished; but the man holds his leg so rigidly that I do not lay stress upon this as a matter of observation.

The reflexes in the arms are preserved. It is also very evident that sensation in both arm and leg is blunted, though not destroyed.

Here is a man paralyzed upon one side by an apoplectic seizure. The attack comes on suddenly, without premonition. There is no loss of consciousness; though he is somewhat dazed for a time, he regains consciousness soon; there is complete loss of power in the left arm, partial in the leg; and there is paralysis of the face on the left side also. There is slight murmur in the heart, a trace of albumen in the urine,—and this occurring in a man 60 years of age.

What has happened to this man?

Gentlemen, there can be no doubt that the sudden occurrence of the symptoms affords only two possible explanations: a cerebral clot or a cerebral embolus. Against embolism is this: there is not enough disease of the heart to give rise to it. Although you have recently seen a case of cerebral thrombosis without disease of the heart, yet we need not take this up for consideration in this case. He has slight thickening of the mitral valves, and possibly atheroma. The explanation here is found in a similar condition in the walls of the vessels in the brain, with slight rupture and extravasation. The question now is, Where was this lesion? The paralysis is incomplete in the leg, complete in the arm, partial in the face; there is also some sensory disturbance, but not absolute loss of sensation. The ordinary site of the lesion giving rise to motor disturbance is the corpus striatum. In this case the lesion would be in the right side of the brain. I do not think, however, that a lesion of the corpus striatum would give rise to an incomplete palsy of the face and leg and complete paralysis of the arm. I am inclined to believe that the cortical motor centre for the arm was the primary site of the hemorrhage, which subsequently extended over to adjoining centres. This explanation is rendered probable by recent advances in physiology; still, it is something we cannot be sure about. But there are several points of more interest to us than the exact site of the lesion. One of these is the cause. Why should this man have this rupture? He was not working hard; there was no special strain upon him at the time it occurred. Why did he have apoplexy? I think that we have an explanation here in the slight amount of albumen in the urine and slight disease of the heart, which point to the conclusion that there are also brittle blood-vessels in the brain; one of these has broken, causing effusion of blood.

An interesting point, here, is that the leg was not affected for some time after the arm was paralyzed. Turning now to the question of treatment, the first dose of croton oil gave him two large stools, the second only one watery movement. The effect of the bleeding was to reduce the tension of the pulse, and to make it slower. The leg also has greatly improved. Here is a case which was bled early, within twenty-four hours after the onset of the symptoms, and the result has been a favorable one. For one thing, we notice that there has been no secondary fever: whether this has been due to the bleeding, the purgation, or the aconite, it is certain from the temperature-record that there is no fever.

What shall now be done for him? We will keep up the aconite, and purge him occasionally, giving him only the blandest diet, and placing a blister at the back of his neck, and wait. Time will do a great deal towards the absorption of the clot and the restoration of function in these paralyzed limbs. After a while it will be a question whether electricity and massage may not be necessary for the restoration of the muscles, and soon iodide of potassium may be administered in order to favor absorption of the clot; but for the present there can be no doubt that the treatment he is on is the best one to pursue.

[The man, shown at a subsequent clinic, was seen to have made an excellent recovery, having very largely regained power in all the muscles.]

COCAINE AS A CARDIAC STIMULANT.

I shall now show you a case which I propose to discuss from a purely therapeutical point of view. The important questions which arose during the progress of the case, and in connection with the diagnosis of the disease and the pathology, are not the points which I wish to bring before you: I rather will call your attention to the results of treatment.

This man, 29 years of age, a laborer by occupation, was admitted into the hospital on the 15th of last month, suffering with typhoid fever. There is no doubt as to

diagnosis, or as to the fact that he was a very ill man. If you look at the temperature-record you will notice the temperature going up to 104°, and not only once, but a number of times is this high temperature attained. There were also noted great weakness of pulse, sweating, very feeble action of the heart, and tendency to pulmonary congestion.

This man was placed upon the usual treatment, mineral acids, quinine, and turpentine stupes, and just a few times oil of turpentine was given internally. From the outset he was very weak, and it was noticed that the ordinary stimulants seemed to have very little effect upon him; he used twelve ounces of whiskey daily without apparent benefit. During the progress of the case I was much struck with the weakness of the pulse and the whole condition of the patient. There was no congestion of the lungs, such as we often find in typhoid fever, and no local lesions to account for this, but he was suffering from the secondary effects of the typhoid-fever poison upon the circulation.

I then placed him upon cocaine hydrochlorate, a quarter of a grain every two hours, and subsequently half a grain at the same interval, and reduced the whiskey to eight ounces a day. Now, gentlemen, the improvement was striking; cocaine showed its power here, as it had in similar cases I have seen elsewhere, and in the hospital two years ago. I was prepared to find cocaine showing its power, as it did in this case in a most marked manner; and the patient, upon whom ordinary stimulants had very little effect, began to improve in the course of twelve hours after it was begun, and the cocaine was gradually reduced, and was stopped entirely last week. During all this time he was increasing in strength and the pulse in volume, and his general condition steadily improved. His temperature this morning is 99°, so that, although not yet normal, we regard the case as convalescent. The heart-sounds are far more distinct; the first sound, which was almost inaudible, can now be heard. The pulse has the same volume and strength as it had last night. His morning pulse is 74; last evening it was 72. It has never been a high pulse, however, being even at the height of the malady under 90, and in spite of the fact of the great weakness of the heart. There is vesicular respiration at the base of the right lung, with a few fine râles; percussion-note is clear, though less so than on the right side; the congestion has passed away.

He has stopped taking cocaine, and is taking a bitter tonic, and that is all that is necessary. It is to call your attention to the use of cocaine as a heart-tonic that I have brought this case before you.

While on this subject I thought you would be interested in looking at this temperature-chart,—that of a similar case. The patient to whom it belongs has left the hospital, though I expected to present him before you this morning. The man whose temperature you see recorded here was also ill with typhoid fever, in the same ward as the preceding case, for a month. He was even more ill than the other patient, since his temperature was 105°. There was the same extreme prostration and failure of stimulants to act upon the heart. The pulse was about 130, and was very weak; therefore it was not a slow pulse like the other case. The apex-beat of the heart was lacking in force, and the first sound was almost inaudible. He had also used quinine and mineral acid, and for a short period tincture of digitalis, but with perfectly negative results. Whiskey was likewise without effect. We gave him cocaine, one-quarter grain every two hours, then increased to one-half grain. The man's life hung in the balance for a few days; but then—really, I think, as the result of the cocaine—he grew more quiet, the nervous symptoms were favorably influenced, and the heart and pulse became decidedly stronger. He began on the 5th; the dose was increased to half a grain on the 6th: it was kept on at that rate until the 14th, when he had so manifestly improved that it was decreased to half a grain every four hours, and about a week afterwards it was gradually withdrawn altogether.

From the temperature-charts before us you see that these two cases go well together therapeutically. I bring them here in order to call your attention to cocaine as a heart-tonic in sustaining the circulation in low forms of fever; especially where there is cerebral disorder superadded. In typhoid fever these conditions are found, and I have just called to your notice the nervous symptoms in the cases before you.

Do not think, however, that these are the only cases in which I have resorted to the sustaining properties of cocaine. Indeed, I began nearly two years ago to

give it in cases of typhoid fever, and I have since often relied upon it to relieve low states of the system and weak heart. I have found in many instances that cocaine was of decided value.

You may ask, Is digitalis not indicated in such a case? It is, but some patients cannot take it at all, and in others it cannot be given for any length of time without causing symptoms of gastric disorder. Again, it has never seemed to me a good heart-tonic in cases of low fevers. Cocaine is free from the objections to digitalis. I could also give you the histories of a number of cases, illustrating the stimulating and sustaining powers of cocaine in cases of lowering of the powers of life, but this would be foreign to our subject. What I have said this morning may be sufficient to direct your attention to cocaine as a remedy of value in low fevers attended by nervous depression and a weak circulation.

ORIGINAL COMMUNICATIONS.

ON EPILEPTIC BRAINS.

Read before the Philadelphia Neurological Society, December 27, 1886,

BY FRANCIS X. DERCUM, M.D.,

Instructor in Nervous Diseases, University of Pennsylvania; Pathologist to the State Hospital for the Insane at Norristown.

THE writer has thus far had the opportunity of studying twelve epileptic brains. Eleven of these have been already described in the "Report of the Pathological Laboratory of the State Hospital for the Insane at Norristown" for the current year, while the twelfth has likewise been described in the Pathological Report of the same institution for the year 1885.* It is not, therefore, my intention to give a detailed account of the convolutions of these brains, but merely to point out some striking peculiarities and to give expression to some of the thoughts which this study has suggested.

We have, in the first place, a notable tendency to the confluence of fissures, which is an acknowledged point indicating a low degree of cerebral development. This tendency is well marked in *every one* of the brains studied. In a number of instances the fissure of Rolando is confluent with the Sylvian fissure. In a number of others the Sylvian, interparietal, and parallel fissures are variously confluent. One of the most striking and most constant instances of confluence is observed in the fusion of the parieto-occipital with the interparietal. It occurs completely in *seven* of the brains studied, and imperfectly in two others.

This tendency to the confluence of fissures is of necessity accompanied by an absence or lessened development of the normal arching or bridging convolutions. For instance (as is well known), the upper end of the parieto-occipital fissure is normally separated from the interparietal by the first occipital convolution of Ecker, the so-called *pli de passage supérieure externe* of Gratiolet. In the instances where these fissures are confluent this *pli de passage* is either entirely absent or so imperfectly developed as not to emerge upon the general surface of the brain.

As a result of the confluence of fissures, appearances resembling the conditions found in the brains of monkeys are occasionally simulated. This, again, is notably the case where the parieto-occipital and interparietal fissures are confluent. In the majority of instances in which this confluence occurs the upper end of the parieto-occipital passes through the interparietal fissure, and terminates far beyond on the lateral surface, thus exactly reproducing the *external perpendicular fissure of the apes.* Occasionally this external perpendicular fissure is accompanied by a second fissure running in a parallel direction, and in one of the brains studied there were three such parallel external perpendicular fissures. It is probable that in these cases *one* of the fissures is homologous with the corresponding fissure in the apes, while the others are merely "*vegetative repetitions.*" †

Following the course of the external perpendicular fissure we come, in some instances, upon a well-marked Wernicke's fissure,—*i.e.*, a fissure running more or less perpendicularly and separating the occipital and temporal lobes. In one of the brains the external perpendicular fissure and the fissure of Wernicke are so well developed that the occipital lobe is, as it

* Also more fully in the Proceedings of the Pathological Society of Philadelphia for 1885.

† The reader is referred to a communication by Dr. A. J. Parker published in the Proceedings of the Academy of Natural Sciences of Philadelphia, 1878, in which the *principle of the "vegetative repetition"* of fissures and convolutions is pointed out.

were, almost lopped off from the rest of the brain.

In addition to such fissures as appear to be of purely morphological value, we have others which bear no analogies to the normal fissures of either man or the apes. Prominent among these are numbers of anomalous fissures on the occipital lobes, especially on the lateral surfaces. There is also a tendency in some of the brains to the formation of transverse or perpendicular fissures on the frontal lobes. In one instance there are three such fissures present. Again, various fissures connecting the parallel, Sylvian, interparietal, and central fissures must be placed in the same category. One anomalous fissure deserves especial mention. It is a short one-forked branch, passing from the Sylvian directly down into the temporal lobe. It cuts deeply through the first temporal convolution, and the gyrus surrounding it completely breaks up the anterior portion of the parallel fissure. Evidently these fissures have a special significance which differs widely from that of the abnormal fissures which have homologies with those of the brain. To this significance we will shortly recur.

In addition to the two classes of abnormal fissures, these brains present striking facts of the under- and over-development of various parts. For instance, one brain presents an enormous over-development of the cuneus. The latter is so large that, instead of being wedge-shaped and small, it constitutes an enormous block of tissue, which is bounded below by a calcarine fissure depressed beneath its usual level, and anteriorly by a parieto-occipital fissure which in one hemisphere runs upward at *right angles* with the calcarine and in the other actually *runs forward at an angle of one hundred and twenty degrees.* In the same brain the lateral surface of the occipital lobe is also much enlarged. The frontal lobes, on the contrary, are small, and the fissures constitute mere shallow depressions on the surface. Here, then, is an instance of enormous over-development in the occipital regions, with an absence of development in the frontal regions. In another brain the quadrate lobule is so enormously developed as to be the most conspicuous part of the mesial surface of the hemisphere. This over-development is also shared by the inferior parietal lobule. The cuneus, on the contrary, appears unusually small. The surface of the quadrate lobule is made extremely complex by a number of deep and intricate fissures. Again, in another brain we have a *pli de passage supérieure interne* developed up to the surface,—a convolution which, as a rule, is developed only in the apes. Further, the various normal fissures of these brains frequently pursue aberrant courses. The Sylvian, parallel, and interparietal fissures are frequently deflected from their average courses by the over- or under-development of the convolutions bounding them. The absence or small size of some of the arching convolutions are, again, conspicuous illustrations of under-development.

In summing up the above results, it is evident that we have, first, abnormal fissures which are purely morphological in their significance, and, secondly, abnormal fissures which are purely pathological in their meaning. To the category of the first belong those fissures whose homologues are found in the apes or monkeys, and of these the external perpendicular may be taken as a conspicuous example. To the category of the second belong those fissures in which no homologies can be demonstrated. In this connection it is interesting to note that in the majority of the cases studied sclerosis of the skull coexisted. In almost every instance there had been a powerful hinderance to the growth and development of the brain. It is probable, therefore, that these anomalous fissures are the result of mechanical causes,—*i.e.*, of growth within an unyielding and an abnormally small space. In the development of these epileptic brains, therefore, both pathological and morphological factors must have played a part. There can be no doubt, however, that the pathological factor must have predominated, and it seems, indeed, as though it must have been at the very bottom of the altered and aberrant growth of the brain, and as though the morphological factors were only the necessary incidentals of a lowered and unbalanced brain-growth. Certainly the various instances of the hypertrophy and of the under-development of parts admit of no other explanation.

The study of these brains is very suggestive in regard to the essential pathology of epilepsy. The cardinal feature of epilepsy is, beyond a doubt, a nerve-explosion;

and whether this be a sensory, a motor, or a psychic explosion does not in any way alter the case. Now, the nervous system is continually storing up force, or, what amounts to the same thing, its protoplasmic equivalent. In the normal condition force is emitted in a relatively gradual manner, and this gradual outflow is dependent upon the interaction of *all parts* of the nervous system. In other words, the entire nervous system is in a condition of equilibrium, and the action of any one part is restrained or inhibited by the action of all the other parts.* Now, in order that this equilibrium may be maintained under the usual strains to which the organism is subjected, the nervous system must have a certain structure, which is the average structure, and which we have learned to regard as the normal. Now, in these epileptic brains certain parts are absent or poorly developed, others again are developed largely in excess, and others still are aberrant and bizarre. Surely it is not going too far to infer that in such a brain the maintenance of equilibrium must be confined to relatively narrow boundaries. In the normal nervous system there must be a certain play or, if I may use the expression, a certain elasticity of equilibrium,—a certain facility of readjustment between the different parts,—by means of which a *stable* equilibrium is secured. In a nervous system, however, where the parts are irregularly developed and therefore badly adjusted, even slight strains may be sufficient to disturb the balance. The parts cannot yield to or play upon each other, readjustments cannot take place, and some portion of the engine being, as it were, detached, suddenly runs down,—*i.e.*, an epileptic explosion takes place.

The above inferences appear unavoidable, though the writer does not by any means wish to imply that all epileptic brains must have the flaring abnormalities of structure presented by the ones he has studied. These cases, however, were all confirmed epileptics, mostly epileptic dements; one suffered from epileptic mania, and another was an epileptic imbecile. They certainly point out the importance of making a detailed study of the convolutions in autopsies of all cases with a history of epilepsy.

* See "Facts and Deductions bearing on the Action of the Nervous System," by Francis X. Dercum, M.D., *Journal of Nervous and Mental Diseases*, November, 1886.

AN ANALYSIS OF THE OCULAR SYMPTOMS OBTAINABLE IN EPILEPSY IN THE MALE ADULT.

Read before the Philadelphia Neurological Society, December 27, 1886,

BY CHARLES A. OLIVER, M.D.,

Visiting Physician and Ophthalmologist to the State Hospital for the Insane, Norristown, Pennsylvania; Ophthalmic and Aural Surgeon to St. Mary's Hospital, Philadelphia.

THE clinical material for these observations was obtained at the State Hospital for the Insane at Norristown, Pennsylvania. The report embraces a study of all of the ophthalmic symptoms that could be gotten from fifty male adult epileptics, without reference to any past etiological factor or present mental condition. This method was pursued for several reasons, most prominent being—

First. A special form of symptomatic disease was taken in preference to any mental condition, because similar mental states may be present in the many and bizarre forms of nerve-lesion, masking and hiding the true significance of the objective symptoms peculiar to any one disease to such an extent as to render differentiation impossible.

Second. A definite variety of disease was chosen, so as to avoid obtaining mere percentages of the ophthalmoscopic signs (which, as a rule, have been limited to an arbitrary designation of the tint of the optic disk and the size of the retinal vessels) of the total number of cases occurring in one asylum,—practically giving, if at all correct, a *résumé* of the different varieties of optic-nerve color and retinal-vessel size of the gross amount of residents of that asylum: an answer which is liable to alter at any time through change of number of patients and character of mentality, or to be totally diverse from the results obtained by another observer placed in a different situation.

Third. A large percentage of similar cases was taken. This was done so that the different mental states which are seen during the course of any *one* disease might be united into a theoretical average case, which would represent a typical example of the physical and physiological conditions of that disease.

Fourth. Males were used. This is important, for, by exclusion of the female subject, any errors that might arise from additional ocular changes dependent upon

diseases which are peculiar to the sex are avoided.

It may be interesting to note that native American stock has been used. There is nothing absolutely important in this selection, because, by reason of many obvious causes, a true American type of man has not as yet been established among us; yet it was intentionally done, so that results obtained from subjects born on American soil could be contrasted and compared with statistics of foreign-born population, in order to see whether the data would exhibit any decided peculiarity in ratios.

OBSERVATIONS AND CONCLUSIONS.

First. Direct vision for form, as a rule, normal in both emmetropia and corrected ametropia.

Second. Accommodative action normal in due proportion to age and refractive error.

Third. Visual fields for form and color reduced to one-third to one-twentieth of normal areas.

Fourth. Visual fields for form and color regularly diminished, without any indentations or scotomata.

Fifth. Order of color-fields follows the regular physiological sequence, without transposition or reversion.

Sixth. Subnormal color-perception to a slight extent, as evidenced by faulty selection of delicate tints and shades containing low percentages of green and red.

Seventh. Pupils, as a rule, equal in size and alike in shape.

Eighth. Irides freely and equally mobile to light-stimulus, accommodation, and convergence.

Ninth. Extra-ocular motion intact in all directions. The presence of insufficiency of the interni in the majority of cases is readily explained by association with existing H + Ah, and probably has no relation to the epileptic condition.

Tenth. Optic disk superficially over-capillary, with a decided grayness in its deeper layers, showing a low grade of incipient optic-nerve degeneration.

Eleventh. Scleral ring rather more sharply cut and broader, especially to the temporal side of the disk, than in the healthy eye; this being probably due to a slight shrinkage of lowered nerve-tissue.

Twelfth. Fibre-layer of retina increased in thickness, as evidenced by dense and coarse massings of striation extending in all directions from the disk, these being more particularly marked in the superior and inferior portions of the eye-ground, even hiding the edges of the disk itself in many instances.

Thirteenth. Retinal vessels large in size and carrying rather dark-colored blood, this being more pronounced than usual with the veins.

Fourteenth. Retinal veins exceedingly tortuous, and in a few instances pulsating.

Fifteenth. Retinal arteries frequently wavy and sometimes tortuous, especially the temporal and macular twigs.

Sixteenth. Retinal lymph-channels visible in the majority of cases, particularly seen along the larger vascular distributions and at the vessel-entrance as glistening and yellowish-white opacities.

Seventeenth. No other visible changes of any significance throughout the eye-ground except a granular condition of the choroid in the macular region.

In addition, it may be mentioned that, as far as practicable, nearly all of the deep and superficial reflexes were obtained throughout the body. These, as a rule, were above normal, and presented some curious anomalies, which will be reserved for a later publication.

As was to be expected among this class of patients, many of the subjective signs were negative; but, withal, sufficient data have been produced to warrant proper conclusions in this direction. The results obtained from the study made of the visible ocular changes are of special value, and may be cited as of sufficient imporance to be useful in diagnosis.

Thanks are due to Drs. Charles A. Woodnutt and Henry Sykes, assistant resident-physicians, for good work and carefulness displayed throughout these researches.

1507 LOCUST STREET.

THE EMOTIONAL FACTOR IN THE CAUSATION OF GLYCOSURIA.

BY M. S. FALLS, M.D.,
Washington, D.C.

IN presenting for special consideration this quite obscure etiological factor, I do so believing it to be by far the most frequently causative of all the long list of predisposing and exciting agencies which have been cited by various authors. The

essential lesion of diabetes is usually held to exist in the region of the medulla (or, to be more explicit, in the floor of the fourth ventricle), and necropsies have shown degenerative changes in the meninges or in the nervous substance proper, such as neoplastic formations or spicules of bone which cause irritation, this irritation acting in a similar manner to the well-known laboratory experiment of mechanical stimulation of the ventricular floor. We are told by writers upon the subject that long-continued mental worry and excitement is also productive of diabetes, but the mechanism remains obscure.

The effects of mental strain upon the system, when examined carefully, are seen to be characterized by cardiac derangement, embarrassed respiration, sweating, alternate pallor and flushing of the face, muscular tremors, incoördination of speech, and sometimes diuresis, all of which plainly show increased activity of these medullary centres. As all organs when in a state of functional activity are more or less congested, and as prolonged congestion leads to irritation, and this to inflammation, it may then be stated as a fundamental principle that long-continued increased or excessive activity of a part will lead to degenerative changes.

Simple gastritis or gastric catarrh due to irritating articles of diet is an example of this. Here we have the gastric membrane thrown into a state of undue activity and stimulated beyond its power of endurance. As a result of this strain the integrity of the organ suffers, and disease becomes established. So it is with the kidneys and other organs. Indeed, the old axiom of "burning the candle at both ends" applies to all parts of the economy. Starting with this self-evident fact, let us turn our attention to the nervous system and analyze the phenomena of nervous action. The nervous system, especially the cerebrum, receives more blood than any other system, plainly showing that this fluid is essential for the proper performance of its functions. Moreover, of all the organs in the economy none require a period of such long inactivity for rest as the brain, and to produce this result an anæmic condition is necessary. The heart, which is apparently in a state of motion continually, nevertheless receives some relief during the interval between its beats. Severe exercise, however, will so augment its action that the period of repose between diastole and systole is insufficient, and morbid changes occur. Now, as healthy mental activity depends largely on the nutrition of the brain, we must expect to find intellectual efforts attended with increased vascularity, and so we do. How frequently does insomnia follow prolonged mental work! How uniformly does somnolence attend manual labor! The cerebro-spinal system, which contains numerous nerve-centres, acts not as a whole, but as a part. If, for example, one set of muscles are to be thrown into contraction, the governing centre of this group is called into a state of activity, and remains so as long as the muscular power is required; when the work is accomplished the centre relapses into a state of quiescence, during which time recuperation takes place. Should, however, a certain group be unduly exercised or abused, then does the exciting centre become so exhausted that paralysis results. This is well exemplified in writer's palsy and hammerman's palsy.*

It is unnecessary to state in detail the twelve centres in the medulla oblongata; but as these centres are brought into action by involuntary impulses, it is easy to understand how they may become so exhausted as to lose their power. Add now the effects of powerful emotions, such as prolonged shame, fear, chagrin, and the sense of some stupendous ordeal, which emotions act upon these centres, and what is the result? The continual congestion leads to irritation of these centres, which are in such close relationship with the diabetic centre that the irritation is propagated by both continuity and contiguity of tissue; the diabetic centre is consequently subjected to this stimulus, and glycosuria results. In chloroform-narcosis the subject, in either the first or the second stage, exhibits great fear, and is subjected to violent emotions; when the anæsthesia wears off, grape-sugar has been detected in the urine. Hysterical women, when recovering from an attack, pass large quantities of limpid urine, which in some cases contains glucose. These illustrate the effects of emotions upon the centres.

In summing up, I think we should ascribe to the psychical element a more important *rôle* than it now holds. In de-

* See Philadelphia Medical Times, October 16, 1886.

fence of this argument I submit the following cases, trusting that they may not be without interest:

William N., æt. 22. This patient had been out of employment for some time, his means were exhausted, and, receiving many insults on account of his poverty, he became melancholic and despondent. Two years ago his attention was called to the profuse micturition, accompanied by great thirst and rapid loss of flesh. His previous health having been good, the suddenness of the attack led him to seek medical aid early. Diabetes was suspected, which suspicion was confirmed by the chemical test. The patient passed from my observation some months ago not improved.

G. S., æt. 24. This young man, of a strong and robust constitution, entered upon the study of the law. Being of a nervous temperament, the fear of the impending examination and the mortification of returning to his home unsuccessful preyed upon him, and for two years despondency held full possession. Prior to his examination for his degree, fears were entertained for his health, and when adverse returns were made he broke down completely. A few weeks later, diabetes manifested itself, and, upon advice, he has gone South in hopes of recovering his former health.

REVIEW OF RECENT WORK IN MEDICAL CHEMISTRY.

BY WILLIAM H. GREENE, M.D.

ON THE PRECIPITATE FORMED BY PICRIC ACID IN NORMAL URINE, AND ON A NEW REACTION OF CREATININE.

WHILE studying the application of the picric-acid test for the detection of albumen, M. Jaffé has investigated the precipitate occasioned by this reagent in normal urine. When normal urine is treated with a concentrated aqueous solution of picric acid the liquid remains clear at first, but in the course of an hour a small crystalline precipitate separates. The precipitation is more rapid if the acid is employed in the form of fine powder (about one gramme to a hundred and fifty cubic centimetres of urine), or if an alcoholic solution of picric acid is used, twenty cubic centimetres of a five-per-cent. solution for every hundred cubic centimetres of urine. In the last case the clear liquid soon deposits a voluminous precipitate, consisting of a net-work of long yellow needles; if the reaction be hastened by brisk agitation the deposit is a crystalline powder.

This precipitate may be separated by boiling with water into uric acid and a substance which crystallizes in yellow needles: the latter constitutes the greater part of the deposit, and is a compound of potassium picrate and creatinine picrate. The precipitation of uric acid is more complete than by hydrochloric acid, and the author suggests the application of the reaction to the estimation of uric acid as well as creatinine, but has not as yet obtained satisfactory results.

When a solution of creatinine is treated with aqueous picric acid and a few drops of dilute potassium and sodium hydroxide solutions, the liquid instantly assumes an intense red color even in the cold. The color varies with the concentration of the solution from orange-red to blood-red, and remains unaltered for hours unless an excess of alkali has been used, when exposure to light changes it to yellow; the same change is brought about in a few minutes by the addition of acetic or hydrochloric acid. This reaction is well marked when the dilution of the creatinine solution is in proportion of one to five thousand, and may be applied to the detection of that substance in human urine. Creatine does not produce the color until after long standing; glucose gives a similar red after very long standing or on heating; acetone is the only substance which yields in the cold with the picric acid and alkali a similar color, but this is a reddish yellow that would not be mistaken for the pure red produced by creatinine.

ON THE DETECTION OF DISSOLVED COLORING-MATTER OF BLOOD IN THE URINE.

Carl Rosenthal finds that Heller's test—a red precipitate after boiling with sodium hydroxide and standing—yields no results when the urine contains less than one part of blood in a thousand. By working with five hundred cubic centimetres of urine, the hæmine test is capable of detecting one-half per cent. of blood. Struve recommends that the urine should first be rendered alkaline, then treated with tannin solution and enough acetic acid to make the reaction decidedly acid, and the resulting precipitate dried and rubbed with ammonium chloride; by treating with cold acetic acid hæmine crystals may then be obtained. If the urine be rich in albumen the precipitate should be burned and

the ash tested for iron by potassium ferrocyanide.

ON THE FATE OF MORPHINE IN THE SYSTEM AND ITS DETECTION IN THE URINE.

Julius Donath has not succeeded in detecting morphine in the urine of a morphiomaniac who in forty-eight hours took one and a half grammes of morphine hypodermically. In one case, after the injection of thirty-six centigrammes, morphine-sulphuric acid was also sought with negative results. The minimum quantity of morphine that could be detected after addition to the urine was two-tenths part per thousand: the process consisted in treating a litre of urine with a little hydrochloric acid and evaporating to one hundred and fifty cubic centimetres, precipitating with iodide of potassium and mercury and decomposing the precipitate in water acidulated with hydrochloric acid by hydrogen sulphide; the solution was concentrated, neutralized with ammonia, and evaporated to dryness, the residue extracted with hot alcohol, the extract evaporated to dryness, redissolved in hot water containing a little hydrochloric acid, and the solution allowed to stand twenty-four hours after neutralization with ammonia; the morphine then crystallizes.

ON THE DETECTION OF CHLOROFORM AND CHLORAL HYDRATE IN COMPLEX MIXTURES.

Dr. Charles Luedeking, who was the chemical expert in the Maxwell murder case, has published the results of some experiments made to test the Ragsky method for the detection of chloroform. This method depends on the decomposition of chloroform vapor into chlorine and hydrochloric acid by passage through a red-hot tube. The experiments showed that "by the process of decomposition no substances are generated which would vitiate the tests for chloroform by the Ragsky method. Chloroform, when it has caused death by inhalation, can with certainty be detected in the body four weeks after death, and, notwithstanding its volatility, it is certainly retained in the viscera in large amount during this time."

Hildebert Baron Tiesenhausen has studied the application of the extraction-method used for alkaloids to the separation of chloral hydrate from animal mixtures. The best results were obtained by agitation with absolute ether and with ethyl acetate; light petroleum, chloroform, and benzine did not yield good results. Five milligrammes of chloral hydrate may readily be separated from seventy-five cubic centimetres of liquid by two agitations, but one milligramme could not be separated by repeated shakings. The author finds that the most delicate reaction for the detection of chloral is that of Hofmann, which depends on the formation of benzo-isonitril when an alcoholic solution of sodium hydroxide and aniline is warmed with chloral, the benzo-isonitril being recognized by its odor: one-sixty-thousandth of a gramme may be thus detected. Then comes the reaction with naphthol,—a deep-blue color by the action of strong potassium hydroxide solution and α or β naphthol,—which reveals the presence of one-twenty-four-thousandth of a gramme: this test is of special value in doubtful cases, for, so far as is known, chloroform is the only substance which responds to it, and the reaction with chloroform is owing to the decomposition of that body by the alkaline hydroxide. Tiesenhausen recommends agitation with ether for the separation of chloral from the contents of the stomach, enough chloral being often obtained in this manner to respond to the naphthol reaction. From blood and urine, however, the most satisfactory results are obtained by distillation. No chloral could be detected in either the lungs or brains of poisoned animals.

THE GASTRIC JUICE DURING DEFICIENT INGESTION OF CHLORIDES.

Von Mering and Cahn, having investigated the effect on the gastric juice of cutting off the supply of chlorides, have published the following conclusions. The secretion of pepsin is independent of that of hydrochloric acid, and continues though no hydrochloric acid be present in the juice. When the supply of chlorides is cut off the secretion of hydrochloric acid diminishes, and when it ceases altogether it is replaced by no other acid, the juice remaining neutral. These results refute the theory that hydrochloric acid is formed in the stomach by the action of other acids on chlorides. When there is a complete absence of hydrochloric acid the contents of the stomach still contain chlorides. As soon as an excess of chlorides is present in the organism an abundant secretion of hydrochloric acid begins.

ON THE POISONOUS ACTION OF POTASSIUM CHLORATE.

Fourcroy and Alyon considered that potassium chlorate gives up part of its oxygen when taken into the system, and since the experiments of Binz and Marchand this explanation has been generally accepted as accounting for the poisonous action of that compound. B. J. Stokvis contradicts this view, basing his opinion on experiments of his own, of W. C. Kimmyser, and of H. C. van Gorcom.

Kimmyser investigated the elimination of chlorate in his own urine and in that of dogs on which he had experimented. He determined the amount of chlorine directly, after fusion with sodium carbonate, and after combustion with potassium nitrate. He thus found that, of four grammes of sodium chlorate, there was eliminated unchanged in his own case 2.277 grammes; in the cases of three dogs, to which had been administered 1, 4, and 16 grammes respectively, he found 0.896, 3.618, and 13.53 grammes. On the days when the sodium chlorate was administered and the doses were given hypodermically, there was an increased excretion of chlorides, and usually also of urea; this increase is to be attributed not to a reduction of the chlorate, but to a drain on the system, for a corresponding decrease from the normal excretion of chlorides was noticed on the following days. In this respect the action of sodium chlorate is identical with that of sodium nitrate, as Kimmyser determined by experiments on dogs whose urine had been rendered free from chlorine by inanition: he therefore concludes that there is no proof of a reduction of the chlorates in the economy. The reduction is also denied by Stokvis, Isambert and Rabuteau, and Von Mering, whose results are in harmony with those of Kimmyser.

The small quantity of chlorate that is unaccounted for in the urine is to be credited to passage into the secretions, which takes place even after the ingestion of small doses, to the slow elimination, to reduction in the urine, and to experimental errors. Kimmyser finds that a one-per-cent. solution of sodium chlorate in urine suffers a reduction of twenty-four per cent. of the contained salt by standing twenty-four hours at 20° C.; the reduction does not take place at the freezing-point or in acid urine, and it is diminished when the urine has been previously boiled: Kimmyser considers it to depend on the beginning of putrefaction. He also regards the reduction by blood as owing to complicated putrefactive processes which occur only as the blood loses its vital properties. Methæmoglobin and hæmatin result in the latter case; and that the change does not take place in living blood was shown by the fact that the intravenous injection of sodium chlorate in dogs was followed by the appearance of albumen and sugar in the urine, but no methæmoglobin, which passes very readily from the blood to the urine in these animals. However, after repeated doses, inflammation of the kidneys is set up, and red corpuscles pass into the urine: these are the source of the methæmoglobin which has been repeatedly found in the urine in cases of poisoning by chlorate.

The poisonous action of potassium chlorate produces heart-failure, according to Jacobi, and this has been attributed by Leichtenstern to the direct influence of the potassium; it does not differ from the action of potassium sulphate or that of potassium chloride in corresponding doses. The authors named agree that toxic results follow only when the dose is large, the solution concentrated, or when repeated small doses on an empty stomach have resulted in the ingestion of a considerable quantity. Van Gorcom finds that sodium chlorate is not more poisonous than sodium chloride in corresponding doses, whether the administration be by the stomach or by intravenous injection.

ON THE PRESENCE OF IRON IN THE LIVER.

Investigations on the quantity of iron in the liver are of but little value when the organ contains blood. S. S. Zaleski has studied the problem after removing all the blood by washing out the vessels with a two-and-a-half per cent. solution of saccharose, by which the liver-cells are in no manner altered. While iron was found to be constantly present in the liver-tissue, its proportions varied very considerably. In all the morphological constituents of liver-tissue it occurs in combination with albuminates and with nuclëin. One of the nuclëin compounds gives the ordinary reactions of iron, while the others do not; of the latter, Zaleski has isolated a compound which he calls hepatin. In these compounds the iron is present in two, if

not in three, states: ferrous, ferric, and ferroso-ferric. Ferrous oxide was found in fifty-two per cent. of the livers examined. In forty per cent. the phosphoric acid present was not sufficient to combine with the iron.

SNAKE-POISON.

R. N. Wolfenden finds that the poisonous properties of cobra-venom are not owing to bacteria or any living organism, nor to any alkaloid or ptomaïne, nor to cobric acid, as was described by Blyth. The so-called cobric acid consists of crystals of calcium sulphate. The venom is sometimes faintly acid, sometimes neutral. The poisonous properties are due to the proteid constituents, which are: (1) Globulin, which is always present and kills by producing asphyxia. (2) Syntonin, which may be precipitated along with the globulin by magnesium sulphate. It passes through parchment-paper to a certain extent when submitted to dialysis, and the toxic action of the acid dialysates is caused by this proteid, not by cobric acid. Its action resembles that of the globulin, but is more feeble. (3) Serum-albumen, which causes paralysis. (4) Traces of hemialbumose in some specimens. Doubtful traces of peptone are considered as accidental.

The venom of the Indian viper contains neither toxic acid, alkaloid, nor any living organism. The poisonous constituents are: (1) globulin, which greatly preponderates; (2) a small proportion of serum-albumen; (3) a proteid which possesses many properties of an albumen. True peptones were not found, and the author considers that the substances described as peptones by Mitchell and Reichart in crotalus-, copperhead-, and moccasin-venoms are really albumoses.

A NEW REACTION FOR THE DETECTION OF SMALL QUANTITIES OF HYDROCYANIC ACID.

G. Cortmann has applied to the detection of hydrocyanic acid and the cyanides Playfair's reaction, which results in the formation of a nitroprusside, the latter being recognized by its reaction with sulphides. The liquid to be tested is mixed with a few drops of potassium nitrite solution, from two to four drops of ferric chloride solution, and dilute sulphuric acid sufficient to cause the brownish-yellow color of the basic iron salt to change to pure yellow. The mixture is then heated to incipient boiling, and, after cooling, is treated with a few drops of ammonia; the liquid is filtered, and the filtrate mixed with one or two drops of a very dilute solution of colorless ammonium sulphide. If hydrocyanic acid was present in the liquid, a beautiful violet color will at once appear, changing to blue, green, and yellow in the course of a few minutes. If only traces of hydrocyanic acid be present, the color is bluish green, and rapidly becomes yellowish. The limit of the reaction is placed at 1 : 312,500, ten cubic centimetres of liquid being used: it is consequently more delicate than the Prussian-blue reaction, but less so than the ammonium rhodanate test.

TRANSLATIONS.

THE TREATMENT OF SYPHILIS BY SUBCUTANEOUS INJECTIONS OF CALOMEL.—Scarenzio's treatment, it will be remembered, consists in the subcutaneous injections of calomel in suspension in glycerin (ten centigrammes of calomel for one gramme of glycerin). This treatment is said to be very efficacious, several injections under the skin, during the space of about four months, of forty centigrammes of calomel in all, being sufficient: it not only counteracts the accidents which appear in the evolution of the disease, but also prevents their return. M. Balzar, desiring to try this treatment at the Lourcine Hospital, but fearing the irritating action of glycerin and the great pain which it causes, was induced to seek for another medium for the calomel, and struck on vaseline oil.

Two subcutaneous injections of the pure oil were at first tried, which proved absolutely painless, and leaving after them neither irritation nor induration. A severe case of syphilis was chosen. The patient was a young woman, aged 19, who had been suffering from the disease for about five months and was in her sixth month of pregnancy. Large patches covered the labia majora and the posterior portion of the anal orifice; patches were also observed on the left tonsil; general roseola, with large macula; abundant papulo-squamous eruptions on the abdomen and the lower limbs, and general adenopathy. The patient had been submitted for some time to treatment which remained absolutely without effect,—namely,

two Dupuytren pills daily, and also two spoonfuls of syrup of iodide of iron. Compresses moistened with Van Swieten's liquor diluted with distilled water were applied to the vulva during the night; cauterizations with a one-twentieth solution of nitrate of silver, gargles of chlorate of potassium, and baths.

On the 4th of October a first injection of two and a half centigrammes of calomel in fifty centigrammes of vaseline oil were made in the back. The injection was in no way painful. The following days a soft tumefaction showed itself, and was slightly painful at the injected part.

On the 11th of October a fresh injection of five centigrammes of calomel was made in the lumbar region, and in a few days the tumefaction attained the volume of a hen's egg. At one time the formation of an abscess was feared; but at the end of about ten days the indurated tumefaction ceased to grow, and was followed by progressive diminution.

Now, during this period the cutaneous manifestations, which had been so rebellious to the former treatment, had diminished rapidly.

Already on the 25th of October the roseola, together with the large patches on the vulva, had disappeared; of the latter there remained but a dry macula of a violet color. The general state was excellent, and the pregnancy was following its normal course.

On the 18th of November the amelioration still continued, and the induration on the spot of injection had diminished to two-thirds of its original size.

HÆMATOSCOPIC RESEARCHES ON THE NORMAL PROPORTION OF HÆMOGLOBIN.—M. Henocque made the following communication recently to the Paris Biological Society respecting the normal quantity of oxy-hæmoglobin in human beings and in different animals. This communication forms the most complete statistic that has been yet furnished on this point.

Among two hundred and eight human beings, the normal proportion was between thirteen and fourteen; five per cent. had been noted fifty times; the proportion of thirteen per cent. is more common among inhabitants of towns.

For monkeys the normal proportion (in Paris) is about thirteen per cent.; for dogs, fourteen per cent.; for guinea-pigs, fourteen per cent.; for domestic rabbits, ten per cent.; for pigeons, eight to twelve per cent.; for lizards, three to seven per cent.; for fish (gudgeon), three to four per cent.

ACTION OF SULPHIDE OF CARBON ON THE ANIMAL ECONOMY.—A few years since, Signor Tamassia called attention (*Canstatt's*, p. 420, 1881) to certain changes of an hæmatic order, and mentioned different symptoms (dyspnœa, hemorrhagic infarctus of the lungs) following acute intoxication with sulphide of carbon, owing to asphyxia, which he attributed to alteration of the blood-corpuscles. Schwalbe also stated in 1884 that he had produced melanæmia and melanosis in the different organs of rabbits by slow intoxication. The importance of this fact with regard to the pathological physiology of malarial pigment induced MM. Kiener and Engel* to satisfy themselves of the truth of the phenomena recorded. They therefore sought to ascertain whether there did not exist some connection between this pigmentation and the changes in the red corpuscles described by Signor Tamassia. They made experiments upon a number of rabbits which had been intoxicated in different ways. Poisoning which was induced by strong doses resulted, both preceding and after the death of the animal, in an alteration of corpuscles which consisted in changes of an amœboid character. But in chronic poisoning neither this alteration nor rapid disappearance of the corpuscle was observed. The urine never contained hæmoglobin. The malarial pigment described by Schwalbe was never present. MM. Kiener and Engel have constantly encountered, in cases of slow intoxication followed by death, an accumulation in certain organs of a particular kind of pigment, which was ferruginous and derived its coloring-matter from the blood. Finally, the exaggerated formation of this ferruginous pigment in the spleen, marrow, portal vein, liver, and other organs, added to the morphological alteration of the corpuscle during acute intoxication, warrants the belief that sulphide of carbon acts as an agent attacking the vitality of the red corpuscles, stimulating its physiological waste notwithstanding the absence of hæmoglobinuria and methæmoglobinuria. V.

* Paper read by M. Charcot for Drs. Kiener and Engel at the Académie des Sciences.

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EDITORIAL.

ON THE DEFINITION AND EXACT MEASUREMENT OF CURRENTS IN ELECTRO-THERAPY.

AT a recent meeting of the Biological Society of Paris, M. Vigouroux communicated a note on the dosage of currents in electro-therapy, in which he criticised the usual methods of indicating this. A few years ago, in order to give an idea of the force of a current the number and nature of the elements employed to produce it were stated,—that is to say, its electro-motive force. At present, currents are employed according to their intensity, which means the quantity of electricity passing in a given time. As this quantity may be very accurately determined in ampères, to define the current would seem a very easy matter; but this is readily seen to be illusory, at least so far as the appreciation of its physiological effects is concerned. Take, for example, two patients for whom authors advise a force of five milliampères. It is found, upon trial, that the electrical resistance in the two patients is very different. In order to obtain five milliampères, thirty-six Daniell elements may be required in one case and only twelve in another. Under these conditions, it cannot be said that the two patients have been electrized in the same degree. They have received the same quantity of electricity, as shown by the galvanometer, but this quantity was transmitted to them under an electric pressure three times as great in one case as in the other, and this the galvanometer did not show. Two currents having the same intensity are not, therefore, equivalent in their physiological action. The chemical and magnetic effects of a current depend entirely on the quantity of electricity; the thermic and mechanical effects depend both on the quantity and on the electro-motive force. Now, in the present state of science, it is impossible to say in what degree the action of the current upon the organism is due to its chemical or to its thermic and mechanical properties. Therefore quantity is as vague a guide as the electro-motive force. Moreover, a given electro-motive force may produce very different intensities, and this to such a degree as to render the application of this mode of valuation absolutely dangerous in patients having a feeble resistance. It is also observed that in order to obtain a given intensity recourse may be had to very different electro-motive forces. This gives rise to a double uncertainty, which cannot be avoided unless the resistance offered by the patient is known beforehand; and this, of course, is never the case. The only rational manner, therefore, of defining the currents is to specify both the electro-motive force and the intensity, according to the custom adopted in manufacturing industries. Although the whole question concerning the influence of these two factors of electric energy in regard to their physiological effects has yet to be resolved, the means to do this, the author thinks, are at hand. And in this connection it would be interesting to compare the respective value of the electro-motive force and the intensity in the usual operations in electro-therapy, as the above considerations concerning the galvanic current apply also to the other forms of electric discharge. Existing apparatus may be considered as the extremes, of which the intermediary is wanting: on the one hand we have machines with an enormous potential and minimum intensity, and on the other hand, batteries of feeble potential and relatively great intensity. The author also pointed out the advantages of a rational system of defining the current,

and made the following suggestions. The electro-motive force and the intensity of a current passing through a part of the body being given, the value of the resistance of this part is then obtainable by simple division. Moreover, on multiplying the electro-motive force by the intensity, the energy of the current is obtained in volt-ampères, or watts. It is to be remembered, however, that the sole indication of the energy is no test of the physiological value of the current. The reason is very simple: an energy represented by twenty watts may be either the product of twenty volts by one ampère or of forty volts by one-half an ampère, and so on. With an equal number of watts, it is clear that a current of great intensity and of feeble electro-motive force would have an action upon the organism altogether different from a current inversely constituted. The total value of the energy is not so important as the respective value of its factors. In order to determine in a rapid manner the intensity and the electro-motive force, the author makes use of the Deprez-d'Arsonval galvanometer, with vertical needle, which possesses the advantage in a medical point of view of being completely astatic. The scale is divided into $\frac{10}{1000}$ ampères, and has two hundred of these divisions. A special commutator is so arranged as to place at will the galvanometer in the circuit of the electrodes or in derivation. The instrument is graduated for fifty volts. In order to determine the resistance it is not even necessary to wait for the current to produce its full effect. But in such cases three readings should be made,—two for intensity and one for electro-motive force. The number of volts divided by half the sum of the $\frac{10}{1000}$ ampères will give the resistance quite as accurately as more laborious methods.

THE MEDICAL REGISTER is a new weekly medical journal, edited by Drs. John V. Shoemaker and Wm. C. Wile, to be published in Philadelphia, the first issue of which will appear February 8. If it is not an aggressive and progressive medical journal, it will disappoint expectations.

THE RELATION BETWEEN THE FUNCTION OF GLYCOGENESIS AND ANIMAL MOVEMENTS AND CALORIFICATION.

AT a recent meeting of the Académie des Sciences, M. Chauveau made a further communication concerning his researches upon the hepatic functions and upon the active part played by glucose and glycogen in the production of motion and heat in animals. The glucose which disappears in the capillaries reappears and combines with the oxygen in order to be transformed into water and carbonic acid in the midst of the tissues, and this is the case in all the organs, including the muscles. But as regards the latter there is a supplementary act performed: they are insured from possible insufficiency of the combustible—that is to say, of glucose—by the store of glycogen which they themselves contain. This provision, which may be compared to that of accumulators in electricity, is made during the repose of the muscles. Only a part of the glucose then which disappears in the capillaries is directly given up for combustion; the other part, on losing its water, is transformed into muscular glycogen,—that is to say, into reserve combustible. The oxygen employed in organic combustion is especially taken up by the carbon of the glucose.

After demonstrating the important part played by the glucose of the blood in the production of heat and action, M. Chauveau concludes that no new impulsion, and consequently no mechanical action, can take place in the animal economy without the actual participation of the hepatic gland. The liver is the indirect collaborator of the muscles in the execution of movements: it becomes more active as a glucose-producer whenever muscular effort is going on in any part of the economy. As long as the hepatic cells furnish glucose to the blood in sufficient quantity, the animal continues to generate

the necessary quantity of heat for the working of the organs and for keeping up the temperature of the body. Let this glycogenic function relax and the glucose disappear from the blood of the vessels, then organic combustion will rapidly languish, and death will take place from arrest of calorification. The latter conclusion is justified by what takes place in animals submitted to prolonged abstinence: as the temperature decreases on the approach of death, the sugar disappears from the blood as well as from the lymph. If the animals die without decrease of temperature, glucose may still be found in these fluids.

FLOATING LIVER.

AMONG a number of interesting and instructive specimens shown at the last meeting of the Philadelphia Pathological Society was a floating liver, removed post mortem by Dr. Formad from a patient of Dr. Keen's. The condition is one of great rarity, and we do not remember any reference to the subject in the Transactions of our Societies. The patient was a German woman who had borne many children and had had for years a pendulous abdomen with great relaxation of the skin and separation of the recti muscles. The liver was very freely movable, and the dragging pains were a source of great discomfort. Dr. Keen proposed, for the relief of the distressing symptoms, to remove some of the redundant abdominal wall and fix, if possible, the liver; but meanwhile the patient died suddenly of renal disease. The ligaments of the liver were much relaxed, particularly the suspensory band, which was greatly elongated. The organ was not enlarged, and appeared healthy. It is to be hoped that Dr. Keen will give the profession a detailed account of this case.

The occurrence of floating liver is doubted by some writers. Legg a few years ago reviewed the recorded cases and came to the conclusion that the condition was not well established. Recently, however, the subject has been elaborately studied by Landau, of Berlin, to whom we are indebted for the valuable monograph on floating kidney. This writer claims that it is a much more common affection than hitherto supposed, and gives notes of sixteen cases. Thirty-one instances are reported in literature,—twenty-seven in women and four in men. The most common cause is a relative increase in the capacity of the abdomen, due to umbilical hernia, prolapse of the uterus, or, what is more common, an absolute increase associated with the so-called pendulous belly. The symptoms are indefinite, and consist chiefly of radiating pains in the upper part of the abdomen, particularly on the right side, dyspepsia, constipation, and venous congestion of genitals and rectum. In many instances the distress is very great: some women are relieved only in the later months of pregnancy, when the uterus acts as a support to the liver. The diagnosis rests upon absence of liver-dulness in the normal position and the detection of a large movable mass in the abdomen which has the form and outline of the liver. The examination in a recumbent posture frequently causes the condition to be overlooked. A point to which the writer does not refer is the possibility of mistaking a large spleen for a floating liver. Such an instance was brought to our notice a few years ago. There was in the recumbent position no liver-dulness, and the abdominal cavity was occupied by a large movable mass, but a careful inspection in the erect posture showed a narrow strip of liver-dulness in the normal position, and the tumor proved to be an enormously enlarged and very movable spleen, which, when the patient was lying down, pushed up the intestines and so obliterated the liver-dulness.

The relief of the condition is effected

chiefly by measures directed against the pendulous abdomen. Douches, friction, and electricity aid in establishing the contractility of the muscles, but the greatest benefit is obtained from a properly-constructed abdominal bandage. So far as we know, operative procedures have not been required.

ATAXIC ARTHRITIS.

THE obscure affection of the joints sometimes met with in cases of locomotor ataxia, and which is generally described under the name of "Charcot's disease," was recently under discussion before the Berlin Medical Society, and was made the subject of a singularly lucid discourse by Professor Virchow. The veteran pathologist seems still to be *facile princeps* in the science to the development of which he contributed so greatly, in spite of his more recent coquetting with politics and state-craft. Virchow is of opinion that the changes in the joints in the ataxic arthropathy do not differ essentially from the local changes in arthritis deformans, or so-called rheumatic gout. In the latter, he says, the first changes begin in the articular cartilage, and the other pathological alterations occur subsequently; and although there are usually no clinical evidences of inflammation of the joints, the process is undoubtedly inflammatory. The cartilage is thickened in spots, the cells being enlarged and often greatly increased in number. Then follows the peculiar stage of cleavage, when the swollen parts separate into layers. Afterwards come fatty degeneration of the proliferated cells, absorption of the cartilage, and exposure of the bone, resulting in an eburnation of the osseous surface. The atrophy of the cartilage is secondary, not primary; it constitutes the retrogressive stage of a previous proliferating process.

In the joint-affections of tabes dorsalis the processes are similar, although more rapid and marked in effect. The changes are more intense in degree and greater in extent.

If the question is asked, continues Virchow, What is the cause of such great alterations? one cannot doubt perhaps that in locomotor ataxia the nervous supply causes a deteriorated nutrition of bone, and that the badly-nourished bone more readily succumbs to inimical influences than healthy bone would. But when one attempts to explain a local morbid process confined to a single joint, as arising from a general spinal disease, one meets with a difficulty. A local cause is necessary for the production of the joint-disease. On account of the predisposition produced by the deteriorated nutrition, the local cause acts with more intensity than in other cases.

The early occurrence of joint-diseases in some cases of locomotor ataxia raises the suspicion that changes due to some other cause may have begun in the joint before the spinal disease began. Syphilis, for example, sometimes produces joint-affections which may be confounded with the joint-troubles of locomotor ataxia.

The ataxic arthropathy is, according to Virchow, not an essential part of the tabetic process. This may furnish the predisposition by deteriorating the nutrition of the bone; but some local cause is necessary to produce the local disease.

It is contrary to sound logic to attribute the disease in the joints altogether to the spinal sclerosis.

A JOURNAL OF BACTERIOLOGY.

THE prominence which the study of minute organisms as causes of disease has assumed in recent medical investigations has given rise to a demand for a special medium of intercourse between students of micrographic pathology.

To meet this demand, a well-known German medical publisher, Gustav Fischer, of Jena, has undertaken the publication

of a weekly, to be known as the *Centralblatt für Bacteriologie und Parasitenkunde.* The editor is Dr. O. Uhlworm, of Cassel, and the prominent collaborators are Professor Leuckart, Dr. Lœffler, and Dr. George M. Sternberg, U.S.A. Original articles will be printed in English, German, and French.

American bacteriologists are requested to send copies of original articles to Dr. George M. Sternberg at the Johns Hopkins University, Baltimore, in order that abstracts of the same may be promptly brought to the attention of specialists in this department throughout the world. Animal parasitology will also find a medium of publication in the *Centralblatt.*

NOTES FROM SPECIAL CORRESPONDENTS.

PARIS.

THE Graduation-Thesis in Paris.—The thesis that is presented at the Paris School of Medicine and at the other faculties in France is very often a paper of real scientific value, for many reasons: first of all, the candidate for the diploma is required to sustain his thesis in public before a jury of four professors, who ask him—or her, for Paris is liberal enough to admit the women—some very searching questions as to why he failed to treat on such and such a point of the subject written on, and what he knows about it. Given the fact that the Professor has the right to refuse the thesis and refer the poor student to his studies for a period of three months, it becomes very inconvenient if one is not thoroughly posted on all the points of the subject he undertakes to write upon. Again, the thesis must be a printed one, and each candidate has to present to the faculty one hundred and sixty-three copies of it printed in clear type at his own expense. These copies must be delivered to the faculty four days before the student is called up to discuss its points with the jury of professors, and long before this eventful day he must have already presented a manuscript of the thesis to the faculty for their acceptance and for the purpose of having a president of thesis named. This is one of the professors, and after he has examined the thesis permission to print is given. The hundred and sixty-three copies of the thesis are distributed among the faculties in France and those of other countries in exchange for copies of their published theses. We notice on the list almost all the faculties in Europe, including several in England, and even in Canada, but none in the United States of America! Is it owing to the kind of thesis that is made in America? Have our papers no value because they are not printed or otherwise publicly quoted? We do not believe so; but, as the subject would take us too far, we leave it to those who are more directly responsible for this state of things to answer.

To return to the French theses, all these formalities make them of considerable value. They are mostly made on some special subject, often taken from cases seen in the hospitals, which are very well worked up, and they usually give the latest developments in regard to the matter, with a full bibliographical and historical sketch, making in fact a most complete monograph of the subject. Certain prizes are given by the faculties every year for the best theses, and they are very often quoted in the clinical and other lectures given by the best professors in Europe. We have known of students who have passed all their technical examinations and then have taken a full year to prepare their thesis. Outside of the circulation spoken of, however, they are not so well known, and, as they present very often original matter, we shall from time to time draw on this storehouse of knowledge.

Among the latest ones are several on therapeutical subjects. One by M. A. Pignoret gives his ideas of the use of "Salicylate of Sodium in Acute Orchitis complicating Gonorrhœa." He states that Dr. E. Henderson, of London, was the first to write on this subject, in the *Lancet* (1882, page 1027). This author gave it in twenty-grain doses every hour with great success, and on the pain being relieved he stopped or reduced the dose. The present writer details a number of personal observations in which he used the remedy in the Paris hospitals, proving that it gives good results. He proceeds to give a full history of the malady, which is clever, but not new to your readers, and he sums up his conclusions as follows:

1st. In gonorrhœal orchitis, salicylate of sodium will bring about a diminution of pain in a few hours, and in a longer time it will cause its disappearance.

2d. It acts well above all in cases that have acute epididymitis.

3d. When the inflammation of the cord is intense, the remedy will fail.

4th. In the large number of cases treated, the resolution of the swelling commenced very much quicker than in cases submitted to other treatment, and in a week or ten days the cure was complete, leaving nothing but a slight induration.

5th. This medication, then, has the advantage of allowing the patient to get about within a day or two at most. It is simple,

harmless, and appears to be superior to all other forms of treatment in this complication.

Another thesis, by a M. G. C. Coremenos, is on the "Use of Naphthaline." He shows that it was employed long ago, in 1843, by Dupasquier, in doses of fifty centigrammes up to two grammes, given in syrup, in cases of pulmonary catarrh. Naphthaline is insoluble in water, and should be triturated for a long time with gum, when it may be given in teaspoonful doses three times a day. Its use as an expectorant is still continued, and outside of its rather disagreeable taste it is excellent for this purpose. It has also been employed as a remedy in skin-diseases, such as lepra vulgaris and psoriasis, and again as an antiseptic dressing. Mention has already been made in our letters of its employment as an intestinal antiseptic in typhoid fevers in the service of Professor Bouchard, in Paris, and it will be recollected that he claims that it is the least toxic of the intestinal antiseptics, being some sixteen times less so than iodoform. It has been used also with success in combination with powdered charcoal in chronic forms of diarrhœa, particularly in children, proving especially useful when there were intestinal parasites. The favorable action of naphthaline when fetid urine exists is shown by the writer of this thesis, and he advises its use in the powdered form, given in doses of one-half up to one gramme. As high as five grammes per day may be given, in doses of ten to twenty centigrammes of the drug mixed with equal parts of sugar and perfumed with a little mint. Naphthaline has also been employed lately made up in capsules of keratin, which would digest only in the intestines. The author sums up its virtues as follows:

1st. From our experiences with the lower forms of vegetations and parasites, naphthaline possesses the power of arresting the development of the inferior organisms.

2d. In the powdered form it is sixteen times less toxic than iodoform, and it is a much more powerful antiseptic.

3d. Taken internally, it possesses all the advantages of charcoal powder without any of its inconveniences.

4th. It has given most remarkable results in patients who suffered with fetid urine.

5th. It not only destroyed the microbes, but also the larger forms of intestinal parasites. It finally has a good use in agriculture.

Professor Peter has given up his didactic lectures at the Faculty, and is now a clinical professor at the Hôpital Necker. We will attempt to give a *résumé* of a late clinical lecture of his at the hospital, on "The Present Medical Doctrines compared with Clinical Facts," but it would be difficult indeed to transcribe his inimitable style, and his works must be read to appreciate his lectures fully. As usual, he is after the microbists with a sharp stick. After showing that Laennec had made a great stride with his discovery of auscultation, and that he inaugurated precision and analysis in diagnosis, then that Corvisart took up Avenbrugger's discovery of percussion and demonstrated the physical alterations in living matter, with all its signs and lesions, Dr. Peter said, "Then came pathological anatomy into our medical doctrines, with more exactness; next came histological pathology, and we thought with the cells that we had at last reached the bottom; but no, for along came the microbe, which was born of the doctrine of parasites. According to those who believe in this doctrine, the microbe is not the lesion, but it is the agent of it, and for these persons there are no longer any local diseases, but only general maladies. For instance, pneumonia is not a local lung-disease; it is a general malady of infectious character, caused by the pneumonococcus, which, getting into the organism, first causes a fever, and then the local lesion of the lungs. This pneumonococcus, it seems, can get into several organisms at once, and then there is an *epidemic* of pneumonia; and it can also walk out of an infected organism and invade another: this is *contagion*. Even Virchow, the founder of cellular pathology, who was opposed at first to the famous bacillus of his countryman, Koch, has also capitulated, and he now sees in disease only a war of the microbe against the cell, a sort of Liliputian pathology. Koch, on the other hand, is only half triumphant, because it is easy to show him that the morbid disorders are not at all proportional to the number of the bacilli, and he is forced to capitulate in his turn, and now takes refuge in an hypothesis that there is a ptomaine secreted by the bacillus, and that this last machine is what does all the harm. Pathology is dominated at present by pathogenesis, and this by bacteriology; every day they come to tell the medical public, who look on astonished, that such or such a disease, one after another, is manifestly of parasitic origin.

"It seems that there are bacteria that do all sorts of things: the capsuled kind in the saliva do good in the mouth, and do all the harm in the lungs, where they manufacture pneumonia; others create hyperthermia in typhoid fever and algidity in cholera: thus some blow hot, and others cold. They find altogether too much. It is a regular overflow. This reckless pathogenesis may be considered as a sort of intellectual gymnastics, good for the brain; but your regular doctor is necessarily a utilitarian. Finding himself always in presence of disease, he tries to apply these new scientific notions; for instance, injections into the lungs have been tried, without, however, thinking how irrational such a medication is, even according to their own theories; for if only one pneumonococcus is left untouched by the injec-

tion the disease must persist. We can only say in favor of this method that there have been no accidents: the patients have more vital resistance than they think,—that is all.

"It has also been proposed to use medical antisepsis, imitated from the surgical. It is a generous idea, but as chimerical as the rest of them; for surgical antisepsis is based on the idea that the patient is a healthy individual, but that he has an open wound, and that it may allow the germs of the air to enter the body and to infect the organism. But for the medical doctor the situation is not the same: he is in presence of an organism that is already invaded, by their own hypothesis, by a microbe; so the thing to do is not to prevent him from getting in, but to get him out.

"I do not need to insist on this point, for it is already well known that the practice of medical antisepsis is far from being encouraging in its results. The same may be said for the antirabic or antihydrophobic inoculations, which are as irrational in principle as they are inefficacious in reality. They have the pretension (which is contrary to facts) to prevent the ripening of a disease which is already in incubation. Vaccine matter has no such power over incubating smallpox. These inoculations are useless," [poor Pasteur!] "as France has seen, in the year that is now drawing to a close, a mortality from hydrophobia equal to that of other years: that is, thirty cases, of whom fourteen died after these inoculations and the other sixteen without.

"So you see what modern medicine has gained so far from their new doctrines. Now what does the clinic say? By clinic I mean the *history of the patient*, for we have to do with pneumonical *patients*, not with the pneumonia itself, not with infection, nor with the lesion, but with the *form of the fever*, mucous, inflammatory, or nervous. We have, above all, to do with those *morbid accidents* that come on in the course of disease, such as congestions, hemorrhages, fluxions, or gangrene, *and according to them to modify our medication*, which proves, if proof be needed, not only the inanity and inefficacy, but also the danger, of any single treatment, such as the microbicide medication. We have to treat the *morbid factor*, which we can modify and even suppress.

"The clinic must rest on an attentive examination of the patient, full details of his disease, and all its morbid elements, taking an account of his strength and exploring the nervous system from the cerebrum to the sympathetic, with its several plexuses; then the state of the digestion, respiration, and circulation. Pathogenesis is the romance of disease, but our clinic shall be the *special history of each patient*."

New Incandescent Ophthalmoscope.— M. Giraud-Teulon has just presented to the Académie de Médecine a new instrument by which he substitutes a direct light for the usual lateral reflected one. All those who are engaged in ophthalmoscopy know how difficult it is for students at first to get accustomed to reflecting the lateral light directly into the eye with the mirror used, and it has prevented many from making use of this means of diagnosis for a long time. The necessity of making the incident ray of light thrown by the right hand, armed with the mirror, concord with the emerging ray coming from the eye under observation, and the fact that this last ray must be received exactly on the proper lens of the ophthalmoscope, has also kept too many from this precious study of living pathological anatomy. To facilitate this, M. Giraud-Teulon proposes to use a direct ray of light, instead of the reflected one that has been so far indispensable. The present form of the ophthalmoscope is based on the principle that the emerging ray of light coming from the observed eye must follow the same track as the ray of light thrown, and therefore one of these rays must be deviated from the line of vision, and in the monocular methods this is the incident ray; but in the binocular system it is quite different, for here the emerging ray is received on a surface common to two rhomboids joined at the summit and divided between the two eyes. It gives two equal rays, sent right and left, following the parallel axis of the observed eye. This division, made by the instrument itself, gets over the difficulty, and the only remaining trouble is to find a position for the lighting focus so that it will not intercept the incidence of the inverse rays on the rhomboids. This is done by making a hole in the back of each of the rhomboids, about four to five millimetres in diameter, and just behind them is placed a small incandescent Edison lamp, which is worked by a Trouvé battery of three elements with the use of bichromate of potassium. The operator takes the whole instrument in his hand and places it before his eyes, as he would a mask used at a fancy ball. He has only then to press the button of the electric battery and *look*. Besides the absence of all technical difficulties, this new ophthalmoscope permits the observer to use the upright method, as he may come close up to the patient with his light.

New French Medical Laws.—There are two bills now pending before the *Chambre des Députés* to alter the present laws relating to the practice of medicine. One of the bills, called the *Projet du Gouvernement*, will most likely shortly pass. Some of its articles are interesting. As regards foreigners, one has already been put in practice for several years past,—that is, the government has referred the applications of foreigners who wished to practise here to the medical faculty, and

they have insisted upon all applicants passing *all the examinations first.* Article 2 of the new law says, "All physicians graduated elsewhere, no matter what their nationality may be, cannot practise medicine in France except on condition that they pass all the examinations before a French faculty" (eleven in all).

This in effect bars out any foreigners who would wish to settle in France, as there are few physicians who would like to start all over again and devote several years to botany and zoology, physics, etc., before reaching the practical examination, of which they might not be afraid. Art. 17 says, "All illegal practice of medicine will be punished by a fine of one to two thousand francs, and it can be increased by an imprisonment of six months to two years."

Art. 14. "The practice of pharmacy and medicine simultaneously is forbidden, even in the case of a person who may hold both the diplomas (pharmacy and medicine); however, any doctor who practises in a locality where there is no druggist within four miles may keep medicines under certain conditions."

Art. 6 interests the dentists, and so far the American dentists have enjoyed the cream of the practice in France, mostly in Paris; but they will have to hurry now, as the new law will be very stringent. So far, any one can practise dentistry here, and this has led to that interesting profession being a very low trade. Indeed, except for the impulse given to it by the Americans it might have remained so; but this, aided by several deaths that have occurred from the administration of anæsthetics by incompetent dentists, has started quite a reaction; but we regret to see that it is not in favor of the two excellent dental schools that have been established here this last few years, and which have several professors of American origin. Now the government insists, by the new law, that the dentists shall be doctors, but has not as yet provided any means of their acquiring their dental knowledge; indeed, it would be difficult for them to get it, as they have no dental professors. Art. 6 of the new law says, "The exercise of the profession of dentist is forbidden to all persons who do not hold the diploma of doctor of medicine, or at least that of *officier de santé*, both of which must be obtained by passing the examinations before the Faculty of Medicine."

The degree of *officier de santé*, which is the second class of the doctorate in France, is a good deal inferior to that of doctor, but it is almost as difficult to get, as the examinations consist of seven in all, and go over all of medicine and surgery, as well as anatomy, physiology, etc. The principal difference is that the candidate is not compelled to have the degree of doctor of arts and sciences first of all, as the doctor is. The *officier de santé* is not allowed to do surgical or obstetrical operations unless assisted by a doctor, and he cannot act as legal medical expert in the courts, nor as hospital physician, but otherwise he is a regular practitioner. Still, we cannot see how the dentist of the future is to be taught his special art by passing medical examinations, unless the Paris Faculty intend to send over to the United States for a few experts to make a corps of dental professors. The new law in relation to dentists continues: "Those who may be practising dentistry when this law is promulgated, and who are over thirty years of age, will be allowed to continue if they have practised two years; but they will not be allowed to use anæsthetics unless assisted by a doctor."

Treatment of Whooping-Cough.—A Norwegian doctor, H. J. Vetlesen, of Hamar, gives some hundred and sixteen cases of whooping-cough in which he obtained favorable results in over seventy-one per cent. of the cases, and entire cures in twenty-five per cent., with the use of the following mixture:

℞ Ext. cannabis indicæ, 1 gramme;
Ext. belladonnæ, 50 centigrammes;
Alcoholis (at 90°), 5 grammes;
Glycerini, 5 grammes. M.

S. Give four to twenty drops morning and evening, according to the age of the child.

Dr. Vetlesen tried the extracts separately, but could not obtain the same results as when they were combined as above.

Changes at the Paris Faculty.—M. Farabeuf, who for so many years has been the *chef* of the dissection pavilions, has just been elected a full Professor of Anatomy in the place of M. Sappey, retired on account of limit of age. According to the new law, all professors are shelved on their reaching seventy, but an exception is made for those who are also members of the Académie des Sciences. M. Sappey was not of this number; since his retirement, however, he has been elected a member of that august body. M. Gariel has been chosen Professor of Physics in place of M. Gavarret, who was also retired on account of reaching the limit of age. M. Gariel is one of those who has done so much to get physicians to adopt a more exact method in applying electricity by measure (milliampères) in place of the old and uncertain method of the strong and weak currents.

Professor Farabeuf informs us that his work on anatomy will be out before long, and that it will contain over two thousand wood-cuts. He is a very popular teacher, and does not believe that nature can be reproduced in anatomical drawings so that students can understand it: so he has a most wonderful collection of schematic drawings and wooden models for teaching purposes. He uses the plainest kind of language in his lectures, and last week he even went so far as to take his coat off to

show how certain manipulations were to be done on the bony pelvis. Coming after M. Sappey, who was the pink of propriety in everything, always appearing in a dress-coat buttoned up to his neck in his lectures, the change is very marked; but, like some of our American lecturers, M. Farabeuf is very popular with the students.

There are two obstetrical professors at the Paris school: one in charge of the Maternity Hospital, Professor Tarnier, and the second one is Professor Pajot, who for many years has been at the *Maison d'Accouchement;* his many interesting and practical lectures have served to teach thousands of accoucheurs and *sage-femmes* their profession. But he also now leaves the Faculty, for he attained the age of seventy on the 18th instant, when he voluntarily retired, as he did not wish to be forced to give up. The new rule seems hard sometimes, that a hale, vigorous man such as Professor Pajot should be forced to retire in the plenitude of his powers; but something must be said for the hard-working assistant-professors, who have rarely ever become full professors until they were what we would call old already. Professors Farabeuf and Gariel, the newly-elected professors, have both been working many years, and they are to-day both gray-headed men of about fifty: so some excuse must be made for the cry of "Make room!" and the speeding of the older men into retirement. A fine bust of Professor Pajot was uncovered at his last lecture, and speeches were delivered in his honor. It is supposed that Professor (*agrégé*) Pinard will get his place, and that M. Dieulafoy will take that of Professor Hardy, who retired last summer.

The faster, Merlatti, went to the end of his fifty days, but his medical committee withdrew after the forty-fifth day, so that the rest of the experiment is very uncertain, to say the least of it, as it then degenerated into a sort of show where people were admitted at from twenty cents upward. The case is, however, a very curious one, as the man certainly fasted for the forty-five days, if not for fifty; but, as before stated, the results for science are not of much importance.

It may interest some of your readers to know that the new volume of clinical lectures by Professor Jaccoud, from which you published one on "Gonorrhœal Infection," is now published by the editors, MM. A. Delahaye and Lecrosnier.

THOMAS LINN, M.D.

PARIS, December 27, 1886.

BOSTON.

THE vital statistics of Boston for the year 1886 have been published by the city registrar, and from his report it appears that the total deaths amounted to nine thousand two hundred and sixty-three, which is less by three hundred and fifty-nine than the deaths for 1885. The death-rate was 23.29 per thousand of estimated population,—a little less than our average for the past twenty or thirty years, which has been twenty-four per thousand. While the number of decedents under five years of age was, as might be expected, less in 1886 than in 1885 by eighty-three, yet it is singular to note that the deaths under one year of age were greater by one hundred and forty-four in 1886 than in 1885. Phthisis caused one thousand and ninety-two deaths during the past year, being 18.27 per cent. of the whole mortality. This proportion is the largest for the past twelve years. Pneumonia caused seven hundred and seventy deaths, two hundred and thirty-nine less than in 1885; diseases of the heart, five hundred and sixty-eight deaths; diarrhœal diseases, seven hundred and eighteen; croup and diphtheria, four hundred and seventy-seven. These were nearly the same as for the preceding year. The suicides were forty-four, against forty-five in 1885, and the homicides thirteen, an increase of four.

The Harvard Medical School has received a unique legacy, consisting of the mortal remains of Mr. Isaac W. Sprague, who has been in the show-business as a "living skeleton" for a number of years past. He was said to have weighed twelve pounds at birth, and to have developed naturally till the age of twelve years. He then began to emaciate, and continued to lose flesh to a most extreme degree. He married at twenty-six, and was the father of three healthy children. For many years the atrophy of the muscular system has been so marked as entirely to prevent locomotion. When his professional engagements brought him to any of the dime museums of Boston, it was his habit to arrange with Dr. O. W. Holmes, for so many years Professor of Anatomy at the Harvard School, to exhibit himself in the amphitheatre. These exhibitions afforded a very pretty display of the osseous and ligamentous systems, with a certain amount of physiological action added to the demonstration. While of course fully alive to the humor of the occasion, Dr. Holmes always had the thoughtfulness to remind his audiences in advance that Mr. Sprague was not a mere anatomical demonstration, but a sentient human being. The séances usually closed with a collection, and to the mutual satisfaction of all concerned. Mr. Sprague weighed forty pounds at his death. Many of our leading physicians had examined him with a view to diagnosis, but without expressing positive opinions. It is now possible that an autopsy may explain the cause of his mal-nutrition.

During the last two months the druggists, as well as many other shopkeepers, have been suffering from one of the periodical attempts to secure the enforcement of the Sunday laws of our statute-books, an attempt made perhaps with more desire to make these laws unpopu-

lar than in the interest of the preservation of the day of rest. Druggists were notified that they would be prosecuted if they sold anything but medicines on Sunday, and accordingly they waived the trade in cigars and fancy articles which formed a considerable part of their Sunday profits. Even thus a few were complained of, and the Committee of the Druggists' Association advised an absolute closure and cessation of all business, ostensibly as the only means of avoiding prosecutions, but probably as a method of bringing public sentiment to terms by depriving the community of medicines. Some little embarrassment was occasioned to medical practitioners for a Sunday or two, but now the shops have settled down to the practice of keeping their doors locked, but opening promptly when the bell is rung and dispensing medicines, whether called for on physicians' prescriptions or on lay orders; but refusing, at least when there is a chance of detection, to sell anything outside of medicaments.

The meeting of the Suffolk District Medical Society in the Section for Clinical Medicine, Pathology, and Hygiene on January 12 was occupied by a very interesting discussion on the subject of poisoning by arsenical wall-papers. An attempt was made to obtain a law from the last Legislature prohibiting the manufacture of wall-paper containing over one-fifth of a grain of arsenic per square yard, but the effort failed through the opposition of the manufacturers and dealers, and perhaps through the lack of unanimity of the petitioners and the narrowing of the scope of the original bill to wall-papers while other papers and textiles were not guarded against. At the meeting in question, Dr. J. R. Chadwick opened the discussion with an account of the poisoning of two or three members of his family in London, a few years ago, by heavily-loaded arsenical paper. In the fall of 1885 he had a paper put upon his nursery, bought from a leading dealer of this city, and certified to have been analyzed and to be free from arsenic. The appearance of symptoms of irritation of the mucous surfaces, colicky pains, gastric and intestinal disturbance, etc., followed so closely upon occupation of this room, and ameliorated so promptly on removal from it, that the paper was finally suspected, in spite of the assurance of the seller, and on being analyzed showed a large amount of arsenic.

Other clinical evidence was offered at the meeting, from Drs. C. E. Stedman and Edward Wigglesworth, of arsenical poisoning in members of their own families traceable to this source. Professor Lyon, of Harvard College, and Rev. Dr. Young, of Cambridge, narrated personal experiences of themselves and their families in this same direction. Arsenic was found in the urine of one of the patients during the continuance of the symptoms, and later was found to have disappeared. Professor Lyon, who has taken great interest in this subject and has collected some thirty cases of poisoning from arsenical papers, stated that a year ago fifty per cent. of the papers analyzed contained over one-fourth grain of arsenic per square yard.

Dr. W. B. Hills, of the Harvard Medical School, who has made analyses for some of the manufacturers and dealers for several years, stated that from his analyses in the years 1879–83 from fifty-four to sixty-five per cent. of all papers were arsenical, thirty-one to thirty-five per cent. strongly so. In 1884 there began to be less arsenic used,—forty-seven per cent. only of the papers containing it at all, and but twenty-two per cent. a large amount. In 1885 he made no analyses. In 1886 thirty-three per cent. were found arsenical, and but thirteen per cent. strongly so. Hence he concluded that the question was solving itself under the pressure of public opinion, and that perhaps legislation was unnecessary.

Mr. Tennent Lee, a chemist, admitted the presence of arsenic in wall-papers, but denied the possibility of its affecting the occupants of the rooms. He thought the alleged symptoms were indistinguishable from those of sewer-gas poisoning, foul furnace-chambers, and even from nervous exhaustion and disordered imagination. In answer to a question, he admitted that none of these other causes could account for the presence of arsenic in the urine.

Professor Carmichael, of Bowdoin College, said that in some one hundred and fifty analyses that he had made of cheaper grades of paper in use in country districts in Maine, he had found that most of the papers costing from six to eight or ten cents a roll contained arsenic, averaging two and one-tenth grains per square yard. He thought, however, that any legislation should take into account the form in which arsenic existed in the paper,—arseniate of iron, for instance, which existed in the so-called "beefsteak" papers, being quite indestructible and harmless to health.

Other chemists spoke on the subject. Dr. E. S. Wood, whose paper three or four years ago first directed public attention to this danger, said that he thought the mode in which arsenic gained entrance to the system was in the form of dust. On the tops of door-jambs and windows colored dust could often be collected which had gathered from wall-paper.

The meeting adopted unanimously a resolution offered by Dr. Chadwick, to the effect that arsenical wall-papers had produced the symptoms of arsenical poisoning in the occupants of rooms so papered.

It is quite evident that the discrimination between dangerous and safe arsenical papers cannot be simply a matter of the proportion of arsenic present, but that physical conditions must also be taken into consideration. C. F. W.

Boston, January 13, 1887.

PROCEEDINGS OF SOCIETIES.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

THURSDAY, JANUARY 9, 1887.

B. F. BAER, M.D., President, in the chair.

THE Secretary read the following paper, by Dr. H. H. WHITCOMB, of Norristown, Pennsylvania.

A REPORT OF SIX HUNDRED AND SIXTEEN CASES OF LABOR IN PRIVATE PRACTICE.

Up to March 31, 1886, I had attended six hundred and sixteen cases of obstetrics. I have had no death of a mother, and only two stillborn children; one of these was destroyed by craniotomy. The forceps have been used in two cases only. I have had no case of twins. I have had one case of elbow-presentation, one shoulder-, one hand-and-face-, and three breech-presentations; all the others were by the vertex. Placenta prævia was present in two cases at full term, and in two miscarriages, one at seven and one at five months. Puerperal convulsons occurred in two patients. A series of thirty-two cases of puerperal fever, but fortunately without a single death, followed me in the winter and spring of 1882. The first case occurred after I was in attendance on a case of scarlet fever, and was followed by three other cases; the next two or three obstetric patients escaped, when I was called to attend a woman who was confined while convalescent from erysipelas. The fever developed in her, and then every case I attended that winter and spring suffered with it. Consultation confirmed the diagnosis in all the cases. One instance was after a miscarriage at seven months following pneumonia. The patient had a tedious convalescence, but has since had a child weighing thirteen and a half pounds. I tried to stop attendance on this class of patients, but could not get rid of them. The epidemic ceased as suddenly as it commenced, and I have not had a case since. The smallest child delivered at full term weighed three pounds and lived only three days. Three deaths of infants have occurred from trismus, and four deaths, in children a few days old, for which I was unable to assign a cause. They simply moaned until they died, while they appeared to be in good condition. I had one case of hour-glass contraction, and four of severe post-partum hemorrhage at term. My success I ascribe to patient waiting and conservatism. I do as little meddling as possible, and do not use antiseptic injections. The credit is partly due to my old teacher, Professor Penrose, who is a safe guide to follow. I owe much to his careful instruction. I see so many doctors who, in almost every case of obstetrics they get, if they arrive before the child is born, put on the forceps to "hasten delivery and shorten the woman's suffering." I am very positive that this frequent use of the forceps is abuse. I have had a number, possibly twelve, of ruptured perineums; they were immediately stitched, with a perfect result in all cases. I have never had a vesico-vaginal fistule, though one of our teachers would impress his classes with the idea that these cases occur in the hands of the country practitioner. I might say the only cases I have ever seen were those in the care of the city doctors.

Dr. H. A. KELLY remarked that Dr. Whitcomb's report was full of interest, and in criticising the observer must be careful not to impose the rules and statistics of an average Philadelphia practice upon the Norristown people. While it is true that ailing, delicate women live and require obstetrical service in Norristown as elsewhere, yet it is a fact that in Philadelphia the up-town mill population from all over the civilized world, and the down-town population of pampered society women and alley-offscourings, present very different problems to the accoucheur.

With notable exceptions, labor in the country is *easier*. Differences of the same kind in greater degree exist between our native and foreign population. He was much struck with this fact last summer, when he went to the Anatomical Institute in Leipsic, to Herr Dornfelder, to buy a normal female pelvis. He was going to Berlin, to return in a month, and instructed him to find a pelvis as near a normal specimen in the museum as he could in the large amount of material passing weekly through the Institute. Upon his return he was given a specimen, which he now had in his office, which was the nearest to the normal Herr Dornfelder had been able to find; and he assured the speaker that a normal pelvis was rare. This dried pelvis, with artificial ligaments, measures: Sp. I., 25½ cm.; Cr. I., 29½ cm.; Cr., 9 cm.; Di., 13 cm. The argument as to different necessities in different localities holds good with regard to the use of antiseptics.

Dr. WILLIAM GOODELL read a paper entitled

A YEAR'S WORK IN OVARIOTOMY.

In it he stated that he had had during the past year fifty-nine laparotomies, but that, lest his paper should be too long, he should limit himself to the consideration of his ovariotomy cases. Of these he had had thirty-nine cases, with three deaths.

Of these deaths, one occurred on the table from the difficulties of the operation. It was a dreadful case of intra-ligamentous cyst with universal adhesions, from which it was shelled out without a pedicle. The ureter had to be dissected out for twelve inches, and the entire colon, womb, bladder, and small intestines were attached to the cyst. It was a very forlorn case from the start, and he operated merely from a sense of duty. He stated that

in the removal of intra-ligamentous cysts the ureter is in great danger, and he believed that it had been repeatedly torn across without the knowledge of the surgeon. Dr. Goodell stated that, before the death of this case, he had had in succession twenty-two successful cases, and afterwards a series of eight cures before the next death took place,—viz., thirty-one cases with one death. The second death was due to obstruction of the bowels in a case of large fibroid of the womb and ovarian cyst weighing sixteen pounds. On account of the fibroid, both ovaries were removed. He had had his share of cases of obstruction, but this was the first fatal one in his recollection. The remedies that he used were calomel and belladonna by the mouth, and turpentine by the rectum. The obstruction is due to the adhesion of a knuckle of intestine either to the stump of the pedicle, to the abdominal wound, or to some denuded surface. As soon as symptoms of obstruction presented themselves, he always aimed at once to open the bowels.

The third death occurred in a case of malignant cystic disease of both ovaries in which the operation was incomplete. Malignancy had been suspected, but the operation was forced on him on account of the excessive pain from which the woman suffered. Yet he argued, from his own experience and from that of Schroeder and Martin, that, other things being equal, it was always wise to remove ovarian cysts, even when malignant, for patients' lives would be greatly prolonged by the operation.

The right ovarian cyst had no pedicle, but ended in a brittle cancerous mass as large as his fist. This, with very great difficulty, was ligated *en masse*, and then bleeding vessels were secured separately. The left ovarian cyst was so fastened to the womb, pelvis, and broad ligament by masses of cancerous excrescences that he did not attempt to remove it. He would have abandoned the case after he discovered the nature of the complications, but he had gone too far to recede, for his hand had been inside of the right cyst to break up its septa, and blood was flowing profusely from it. The lady died twenty-six hours later, from shock and hemorrhage.

He stated that some ovariotomists do not report their incomplete operations or their exploratory incisions, but that he thought it fairer to do so. If his memory served him no trick, this was the only incomplete operation for ovarian cyst that he had ever had. None of his cases had been selected, and he had refused to operate in one case only, and that one on account of epithelial cancer of the cervix; so that he did not have any exploratory incisions to report. He had twenty-one cases with adhesions, a very large proportion, which he attributed to the tendency women in this country have of postponing the day of operation. He also had had twenty cases of double ovariotomy; but this large number was due to his rule of removing the second ovary in all malignant or suspicious cases, in all cases which have passed the climacteric, in all cases of incipient disease, and always when asked by the patient to do so. He further stated that he still adhered to Listerism, and that he used Keith's dressing of one part of carbolic acid to seven parts of glycerin.

Dr. PARISH cited a few instances of evil results following abdominal tapping for purposes of diagnosis or for relief from distention. In his first ovariotomy case, with the view of clinching the diagnosis, he aspirated and withdrew a few drachms of somewhat cloudy ovarian fluid. The patient presented some symptoms which in a few days became grave,—pain in the tumor, rigors, rapid and feeble pulse, and high temperature. He operated during the existence of these symptoms, and found suppuration of the interior of the cyst and extensive anterior adhesions; both conditions doubtless dependent upon the aspiration. The patient recovered.

A few years ago a well-known medical gentleman of this city aspirated a tumor supposed to be a multilocular ovarian cyst. Though the fluid was stated to verify the diagnosis, the patient miscarried in one or two days of twins at about the fifth month, and the tumor proved to be simply a uterus enlarged by reason of a multiple pregnancy.

He had recently seen in the Philadelphia Hospital a shocking case of labor, in which active labor-pains began one week previous to admission to the hospital. No urine had been voided for several days. Pregnancy was denied by the patient and her friends, and was not recognized by two physicians. The woman was small and deformed, and in the abdomen were two fluctuating tumors, one due to a distended bladder, the other the uterus. Aspiration was resorted to in both tumors, a procedure that was not only unnecessary for diagnostic purposes in this case, but which would probably have been highly detrimental to the patient had not the neglected and protracted labor already determined a rapidly fatal result. Though tapping for relief and especially for diagnosis is less frequently resorted to than was the case a few years ago, yet even now it is too frequently done.

In reference to the development of cancer or sarcoma after the removal of seemingly benign ovarian tumors, he had seen recently an example in a patient operated on by Dr. Hickman and himself. A large cyst of one ovary and a small one of the other, both free from the appearance of malignancy, were removed, and the patient made a tardy recovery. In about a year sarcomatous growths developed in the neck and axilla, and a large one in the abdominal wall of the left lumbar region. The patient died a few weeks ago, and the autopsy was made by Dr. Morris Longstreth, and though the sarcomas referred to

were present, there was not intrapelvic disease. An interesting feature was the total disappearance of the ligature of iron-dyed silk with which the pedicles and several vessels were secured about eighteen months previously.

Dr. H. A. KELLY stated that while simple tapping was often in no way injurious, it was also often productive of grave injury, and one of his own cases illustrated this point very well. The patient, having a cyst weighing one hundred pounds, was tapped in the left iliac region by a notorious homœopathic surgeon. She had previously suffered from pressure-symptoms. From now on she suffered from severe inflammatory pains around the puncture, and at the operation the extensive dense adhesions at this point constituted the chief difficulty. She is now well, more than a year since the operation.

It is a cause for mutual congratulations for American operators that their results are becoming so good. The whole credit of this lies in the thorough use of antiseptic agents and the rendering the field of operation completely *aseptic*.

He believed, too, that our cases at home are more difficult than those now being operated on abroad. The tumors we operate upon are older, and with the increasing age of an ovarian tumor occur many changes detrimental to the patient: depression of vitality from pressure-symptoms, diversion of so much albumen from the system at large, surcharge of the emunctories, as well as adhesions and unfavorable changes within the tumor itself.

Keith's dressing of a strong carbolized glycerin has rendered excellent results in the speaker's hands in at least twenty cases.

Dr. GOODELL, in answer to a question by Dr. Baer, said that he had operated during menstruation merely from pressure of time on the part of the patient, and little or no effect was produced on the discharge by the operation.

Dr. JOSEPH PRICE, in commenting upon some points alluded to in Dr. Goodell's paper fearing the contaminated atmosphere of a general hospital, cited the statistics of two hospitals,—special department of Birmingham General Hospital and Birmingham Hospital for Women,—covering a period from January, 1878, to September, 1885.

Special Department of General Hospital, ovariotomy, 35 cases, 11 deaths = 31.4 per cent.

Birmingham Hospital for Women, ovariotomy, 268 cases, 19 deaths = 7.1 per cent.

During the same period the total number of extra-abdominal operations in the Special Department of General Hospital: 85 cases, with 21 deaths, = 24.7 per cent. mortality. Birmingham Hospital for Women, 632 cases, with 49 deaths, = 7.7 per cent. mortality.

One point as to the value of the spray, quoting from Keith's report of cases treated in the Royal Infirmary, Edinburgh:

Carbolic Acid Spray Cases.

Ovariotomy, 21 cases; 18 cured, 3 died.

Hysterectomy for fibroid, 2 cases; 2 cured, 0 died.

Battey's operation, 1 case; 0 cured, 1 died.

Twenty-four cases, with four deaths, = 16.66 per cent.

Boro-Glyceride Spray Cases.

Double ovariotomy with hysterectomy, 1 case; died.

Hysterectomy for fibroid, 1 case; recovered. Result with boro-glyceride spray, 2 cases, with 1 death.

No Spray.

Ovariotomy, 47 cases; 46 cured, 1 died.

Hysterectomy for fibroid, 7 cases; 7 cured, 0 died.

Battey's operation for fibroid, 1 case; 1 cured, 0 died.

Interstitial pregnancy, 1 case; 1 cured, 0 died.

Total, fifty-six cases, with one death.

Mr. Keith says, "No cases of serous cysts of the broad ligament were operated on. These all were treated by tapping, and none of them have returned." One such case that Dr. Price saw died a few days later. Of Dr. Keith's cases, one-half had no adhesions.

Dr. MONTGOMERY expressed pleasure at hearing Dr. Goodell's details and success, and considered his success gratifying, especially after tapping. A patient came to him one month after tapping. She had a high pulse, septicæmia, large adhesions to viscera, etc., putrid clots in the tumor, and died on the fifth day with a temperature of 105°. He does not approve of tapping broad-ligament cysts. One patient with such a tumor was tapped seven times. He afterwards removed the tumor, and did not have a single vessel to tie. In this case the peritoneum had been pushed up by the tumor, and was not opened until late in the operation.

Dr. GOODELL made a few remarks on the subject of statistics. Dr. Keith's have improved not because he has given up the spray, but because he has grown to his work. Dr. Goodell will give up the spray because it is an intolerable nuisance. As to the question of the malignancy of ovarian tumors, it has been said that "all ovarian tumors are malignant, and should be so treated." This is too sweeping; but the tumor should in all cases be removed as soon as possible, as soon as it is discovered.

Dr. R. P. HARRIS desired Dr. Parish to report the present condition of the patient from whom he had removed the ovarian tumor exhibited by him before the Society at its meeting on March 4, 1886, the day after the operation.

Dr. PARISH requested Dr. Harris, who had seen her much more recently than he had, to report her condition.

Dr. HARRIS stated that notwithstanding the fact that the tumor was largely solid, that it had grown rapidly, that the solid portion had an appearance of malignancy, and that there was a small morbid growth projecting upward from the fundus uteri, the lady was to all appearance a well woman. He saw her on December 26, when she claimed to have perfectly recovered her health and strength after a very prolonged convalescence. Her appearance and activity certainly indicated that her statement was correct. The uterine nodule must have been a fibroid, as had it been cancerous it must have materially developed in nine months. The future of this case will be of much interest.

(To be continued.)

PHILADELPHIA NEUROLOGICAL SOCIETY.

MEETING OF DECEMBER 27, 1886.

(Continued from page 296.)

A PAPER by Dr. F. X. DERCUM was next read, on

EPILEPTIC BRAINS.

(See page 304.)

DISCUSSION.

Dr. CHARLES K. MILLS: The specimens presented by Dr. Dercum have great value. It is in part at least by studies of this kind that we will eventually discover the basis of epilepsy and of some forms of insanity. All genuine investigations are practical, and in studies of this kind an outcome of good is evident, even from the practical as it is ordinarily regarded. Of the many classifications of insanity which have been attempted, that of Dr. H. M. Bannister, of Illinois, is to my mind the best, although open to some criticism. His classification is into first primary and next secondary insanities. Under primary insanities he ranges (1) teratological forms, dependent on original structural defects; (2) pathological forms, dependent on alterations due to disease; (3) mixed forms, generally pathological, but in part probably due to original structural defect. Under his first head of teratological forms he embraces cases of idiocy, imbecility, and what he chooses to term pseudo-paranoia. The point is that these are cases which can only be demonstrated through morphological or teratological conditions such as are present in the brains exhibited this evening. By studies of the kind made by Dr. Dercum we are helped towards a fundamental understanding of insanity, and therefore towards better systems of classification. In regard to some of the apparent hypertrophies present, the idea suggests itself that these may be due not so much to overgrowth as to lessened resistance of the bony envelope.

These studies are but the beginning of a great work. Valuable as this work is, it is but the pioneer work,—the study of abnormal cerebral surfaces. Before long these investigations will be carried below the surface, and will be histological as well as researches in gross anatomy.

Dr. I. MADISON TAYLOR: It is well known that in most of the subjects of the convulsive disorders of childhood there are found distinct evidences of rickets. Some writers have said that at least thirty per cent. of children with convulsive disorders present marked rachitic changes. Gowers states that in fully ten per cent. of all epilepsies rickets is a predisposing cause. This would seem to bear upon the subject of brain-changes due to faulty bone-growth.

Dr. J. HENDRIE LLOYD: I would ask Dr. Dercum, with reference to the onset of the epileptic symptoms in these cases, and more particularly as to the form of insanity which they presented, whether in all of the cases the disease was due to hereditary abnormality of development, or whether some presented acquired forms of insanity.

Dr. FRANCIS X. DERCUM: In many of these cases the history was obscure. Ten of the twelve cases were ordinary epileptic dements. In one case, that which presented the large cuneus, the patient was an epileptic imbecile, and had been so from early childhood. The other specimen is from an epileptic maniac. He presented attacks of epileptic fury. It seems to me that our notions of epilepsy are not altered by the different forms under which the disease presents itself: whether it manifests itself by an intellectual or emotional explosion, as in mania, or by a motor explosion, as in the convulsions of ordinary epilepsy. We may find, as Gowers points out, cases where there is, instead of an explosion, a sudden arrest of all the processes. Again, the condition might show itself simply by the epileptic aura. There might be a sensory explosion without any motor disturbance. We should not limit our idea of epilepsy simply to the motor disturbance. The point in epilepsy seems to be that the normal interchange of function between the different parts is not kept up, this being rendered impossible by the abnormal construction of the parts. They are out of proportion to each other.

Dr. CHARLES A. OLIVER read a paper giving

AN ANALYSIS OF THE OCULAR SYMPTOMS OBTAINABLE IN EPILEPSY IN THE MALE ADULT.

(See page 306.)

DISCUSSION.

Dr. LOUIS J. LAUTENBACH: The subject which has been discussed by Dr. Oliver has been for the past three or four years worked

upon by myself, both among male and female subjects, and among those not insane as well as among the insane. The cases have been both from hospital and private practice. Within the past week I have seen three patients with the ordinary epileptic symptoms. One of these had the typical eye-ground which Dr. Oliver mentions. This was a case of idiopathic epilepsy. In another case, supposed to be one of syphilitic epilepsy, the eye-ground was different. In the third case there was still another picture, and in this instance the convulsions were due to the presence of a brain-tumor.

It is an interesting as well as instructive fact that there is a close resemblance between the eye-ground in a case of imbecility and that in a case of epilepsy: so far as I know, there is no essential point in which they differ.

There is one point which Dr. Oliver has not mentioned that I have noted, and that is that in perhaps one-third of the cases examined, and especially in those seen in insane hospitals, the macular region presents a red granular appearance, and, in addition thereto, the macula itself was of a dull red color. I have not observed the darkness of the color of the blood to which reference has been made.

Gowers states, as the result of the examination of a thousand cases of epilepsy, that there is only one condition that appears to be somewhat frequent in these cases, and that is that the arteries and veins appear to be about equal in size. It is strange that a careful observer like Gowers has not noted the thickening of the fibrous tissue of the retina which has been described by Dr. Oliver, and which is usually the first thing that is observed upon examining the fundus. In examining these cases I was struck with the frequency of high grades of hypermetropia, the proportion being greater than is observed among healthy individuals.

There is another point of some interest, and that is that in long-standing epilepsy, where the attacks have been very frequent or severe, it frequently happens that the nerve presents very marked signs of degeneration, the atrophy being decidedly advanced, the direct form of vision being well preserved.

Dr. FRANCIS X. DERCUM: The use of the ophthalmoscope in epilepsy for diagnostic purposes I regard as of comparatively slight value, for the diagnosis is usually made with ease from the history. The chief value is the light which it throws upon the pathology. Other things being equal, there is a certain correspondence between the condition of nutrition in the retina and the nutrition of the cerebral tissues. There is a certain amount of agreement between the ophthalmoscopic appearances and the microscopic appearances of the brain-tissue. In one case of epilepsy in which Dr. Oliver examined the eye-ground, the patient subsequently died, and section of the brain showed changes similar to those found in the eye. There was a similar tortuosity of the vessels, a similar infiltration of the sheath of the vessels, and a general increase in the neuroglia.

Dr. CHARLES A. OLIVER: I am not now prepared to give any data in reference to the similarity of the eye-grounds of the imbecile and the epileptic, although I am pursuing investigations among the imbeciles at the Norristown Hospital for the Insane. Also, as I have before noted, I have carefully avoided any endeavor to make any differential diagnosis as to the causation of the convulsions. Inequality of pupil independent of local adhesion can be readily understood when differences of vision and accommodative action dependent upon refractive error, etc., which are so often seen in the two eyes of the same subject, are considered. These were carefully studied and purposely excluded, merely giving the pupillary reactions, sizes, and shapes, *as a rule*, although in a number of instances, especially where there was unequal contraction of the visual fields, I found some curious errors in the innervation arcs of the irides. In reference to the occurrence of high degrees of hypermetropia (varying from four to five dioptrics), I must say that I have not found this to be the case, at least in those subjects that were at my disposal. The fact that the amount of grayness of the disk in some instances seems to bear no absolute relation to the amount of nerve-degeneration —as was curiously shown in a series of observations made some years ago upon young, seemingly healthy males, in which I found that those nerves which were apparently extremely gray had excellent quantitative color-perception, while some of the nerves which appeared of good healthy tint had not as good (none of these cases making a single mistake in Holmgrem's loose-wool selection, and all having perfect acuity for form)—is curious, yet it must be admitted that the amount of vision and color-perception seen with degeneration of nerve-tissue is dependent upon the squeezing or atrophy to which the nerve is subjected. Those of Gowers's observations which were made during or immediately after a convulsive attack were extremely difficult to manage, although limited to cases in which the seizure began locally. His assertion that during the intervals of the fits there are no abnormal ophthalmoscopic appearances can, I think, hardly be borne out. In framing the conclusions which I have presented, I have grouped all the symptoms, both subjective and objective, into an average case, hoping thereby to obtain a somewhat typical picture. The peculiarities of the eye-ground seen in the cases I have studied—those of long-standing attacks of frequent occurrence—are most probably explained by the presumption that every convulsive discharge leaves an additional pathological condition, by which the

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This solid residue consists of, "besides "the trifling amount of proteid material "and of fat (which latter, in practice, is "guarded against with great care), *only* "*the salts of the muscle*, the *hematin* and "*allied pigments*, *traces of sugar*, perhaps, "*some lactic acid*, and the nitrogeneous ex- "tractives *creatin* and its *congeners*. As "the original half-pound of muscle may "contain about forty to sixty grains of the "salts, and ten to twelve grains of the "nitrogeneous waste products, the beef tea "(half-pint) certainly contained no more." —PROF. BAUMGARTEN.

Of BEEF EXTRACT, DR. PAVY says, "There are grounds for believing that a "considerable proportion consists of prod- "ucts of proteid decay, materials in course "of retrograde metamorphosis, that are of "no use as nutritive agents."

The wellnigh superstitious idea entertained by the *laity* of beef tea is expressed in the allusion to the "*strength*" which is popularly supposed to be extracted in the *tea*; after which the *beef* is thrown to the dogs. The workingman makes soup from a joint and consumes the "strength" and the *beef* both.

The medical profession insist that patients shall profit by the knowledge and progress of medical science, by the use of artificially-digested fresh milk, etc. The nostrum-advertisers usurp the functions of the physician by prescribing fictitious "foods for invalids," foods which medical science has long since condemned.

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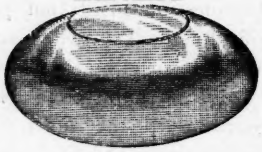

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objective appearances of a low and chronic form of retinitis and perivasculitis, associated with dirty red-gray degeneration of the optic nerve, are at last established as the visible living results of a similar process which has been taking place within the intracranial substance, and which may be readily seen post mortem by careful microscopic examination.

Dr. GRANVILLE FAUGHT exhibited, by invitation, a new milliampère-metre, made by Waite & Bartlett; also a pole-changing electrode-handle.

Dr. CHARLES K. MILLS exhibited Rudisch's new portable galvanic battery.

Adjourned.

NEW YORK ACADEMY OF MEDICINE.

A STATED meeting of the Academy was held January 20, 1887, the President, A. JACOBI, M.D., in the chair.

THE VALUE OF QUININE AS AN ANTIPYRETIC IN PNEUMONIA.

Dr. JOHN H. RIPLEY read a paper on this subject, it being based principally on the histories of forty-eight cases treated in the St. Francis Hospital. This number included only those cases in which the experiment was carried out under careful observation of the patient's symptoms and the effects of the drug; in many other cases, with less complete histories, the results from the use of quinine were similar. The drug was given only in cases in which the temperature had reached at least 103° F. The quinine was given usually by the mouth and in solution, sometimes hypodermatically, sometimes by the rectum. No experiment lasted less than four hours, and usually not less than six to twelve hours. In the earlier cases the temperature was taken every fifteen minutes, later half-hourly or hourly, and always by the rectum. The effect of the drug on the pulse and respiration was noted in about two-thirds of the cases. When but a single dose was given during the day, it was usually in the morning; but all parts of the day were represented. Nearly all the patients were adult males, from nineteen to forty-five years. In twenty experiments a single dose of twenty grains of the sulphate of quinine in solution by the mouth was given: in five, thirty grains; in three, thirty grains were given in five-grain doses every two hours; in two cases thirty-five grains were given in the latter way; in eight cases forty grains were given at a single dose by the mouth; in three, twenty grains hypodermatically; in three, fifteen grains hypodermatically; in one, eight grains hypodermatically. The reduction in temperature which took place was always of short duration. There was no uniform time as to when the temperature began to fall, nor as to the duration of the fall: in a large number of cases there was a slight lowering of the temperature within fifteen minutes; in others it began to fall within half an hour to three hours. The time from the beginning of the fall to the permanent rise was from two to ten hours. But the temperature, even when taken every fifteen minutes, was found to vary constantly. The effect on the pulse and respiration was neither constant nor uniform, and the pulse and respiration did not constitute a sure guide as to the effect upon the temperature. Of the six cases in which the temperature was reduced more than two degrees, in four there was malarial poisoning. Giving reasons for excluding these cases excepting one, he said that the greatest reduction in temperature obtained was only one degree and a fraction, except in a single instance. Practically, as far as we could judge from these experiments, the most that we could expect from the administration of from twenty to forty grains of quinine administered daily in the active stage of lobar pneumonia was a reduction of the temperature between one and two degrees Fahrenheit in about half the cases, while in the other half the reduction would amount to less than one degree. When he added that the lowest point reached did not continue approximately more than two hours, the results appeared even less striking. It was not improbable also that in a number of cases the effect of the drug in reducing the temperature was only apparent, for there were recessions of the fever in pneumonia without medical treatment.

The conclusion that quinine was a feeble antipyretic in pneumonia was arrived at by his experiments. But, besides being only a feeble antipyretic, there were other objections to its use. In even moderate doses it produced anorexia and nausea, and in large doses it not unfrequently excited retching and vomiting, prolonged intolerance of food and stimulants, marked cardiac weakness lasting several hours, sometimes associated with dicrotic pulse. Profuse, often cold, perspiration was another effect; epistaxis occurred in about twelve per cent. of the cases; profound nervous depression, somnolence, delirium, muscular twitching and trembling, dilated pupils, in two instances opisthotonos, were among the effects upon the nervous system. In three cases in which a thorough examination of the urine was made, the albumen was found increased in quantity after taking quinine, and in one there appeared renal casts which had not been present before. In his opinion, these injurious effects of quinine more than counterbalanced any good arising from the slight temporary reduction in the fever which it produced. He had not been able to find evidence that it ever shortened the course of the disease or lessened the mortality.

Dr. RIPLEY thought that too much importance had been attached of late to the reduction of the temperature in disease, especially when of moderate degree. In typhus and

typhoid fevers, for instance, of which we had had during the past few years quite a number of cases in the hospitals, the mortality had been markedly less after abandoning the former heroic measures for reducing the temperature. Why should it be necessary in a case of ordinary pneumonia, running a short course, to ply the patient with antipyretics? That quinine had any influence in arresting cell-migration might well be doubted. If an antipyretic were indicated in pneumonia, antipyrine and even salicylic acid were more powerful and less dangerous than was quinine.

Dr. M. PUTNAM JACOBI thought, from experience in the treatment of pneumonia in dispensary children, that quinine could not be relied upon as an antipyretic; that antipyrine was more suitable.

Dr. J. LEWIS SMITH had found quinine to be a very good emetic in children, and he thought it probable it may have sometimes been vomited when the physician was not informed of the fact. He would give it only in small doses and as a tonic in pneumonia.

Dr. FRUITNIGHT, Dr. CASTLE, Dr. BILLINGTON, and Dr. HOLT had not found quinine a useful antipyretic in pneumonia; other measures were preferable.

The PRESIDENT seldom gave quinine for its antipyretic effects in pneumonia at the present time, as antipyrine, for instance, was more efficient. But some years ago he employed it and had obtained benefit from its use. It was important that it should not be given during the height of the fever, as it would not then be absorbed and would injure the digestion; if given hypodermatically, the carbamide of quinine was the best form to administer. At the time he referred to he was in the habit of giving from six to ten grains during the day to a child, and he got the name of overdosing; now, however, many physicians gave much larger doses, but without getting the unpleasant appellation which had stayed with him, notwithstanding he gave no larger doses than formerly, now looked upon as moderate.

NEW YORK PATHOLOGICAL SOCIETY.

THE annual meeting was held January 12, 1887, Dr. T. MITCHELL PRUDDEN, the Vice-President, in the chair.

THE "BRONCHIAL TREE."

Dr. W. P. NORTHRUP presented the lung of a child 3 years of age, dead of broncho-pneumonia, the interest in the specimen being that, by a favorable cut with the knife, the so-called bronchial tree was very beautifully shown.

SYPHILITIC LESIONS OF THE LUNGS.

Dr. W. H. PORTER presented specimens similar to those which he had presented at a late meeting of the Society, illustrating the syphilitic lung. The bacillus tuberculosis was not found, after the most careful search.

THE LESIONS OF THE DIFFERENT STAGES OF BRONCHO-PNEUMONIA.

Dr. L. E. HOLT presented the specimen, which was chiefly of interest as showing the lesions of broncho-pneumonia of only two or three days' duration at one part of the lung, of about three weeks' duration at another part, and of eight weeks' duration at another part. The child was taken sick with the usual symptoms of broncho-pneumonia eight weeks before: there was a relapse about five weeks later, and again before death.

TYPHOID FEVER SIMULATING CEREBRO-SPINAL MENINGITIS.

Dr. R. W. AMIDON presented the intestine of a woman aged 30 years, showing well-marked lesions of typhoid fever; many of the ulcers in the lower part of the ileum having healed, but some in the large intestine still in a sloughing condition, as was the one from which fatal hemorrhage had taken place the day before. The patient was taken ill November 19, 1886, with pain in the back of the head and neck, and later she had chills. The pain in the back of the head increased, and a doctor was called. The temperature was 103.8°, higher in the morning by one or two degrees than in the afternoon. The morning temperature throughout the sickness was nearly uniformly higher than the afternoon temperature, and in other regards the temperature-course was very irregular. The cerebro-spinal symptoms were marked throughout the attack. Dr. Amidon saw the patient in consultation once. There was no special tenderness over the abdomen, no ileo-cæcal gurgling nor eruption. Later there was a scarlatina-like eruption in patches all over the body. The temperature became nearly normal on two or three occasions, but again rose from impropriety of diet, and a few days before death it was the temperature of pyæmic or septic poisoning. The diagnosis had been in favor of cerebro-spinal meningitis. But it was now changed to typhoid fever, as this seemed best to account for the septic poisoning. The patient was doing well when suddenly intestinal hemorrhage took place and resulted fatally. Dr. Amidon said the text-books did not mention cerebro-spinal meningitis in speaking of differential diagnosis in connection with typhoid fever. He had found only one case in literature, after brief search, in which septicæmia followed typhoid fever. The spinal cord in the case which he related was normal; the cranial cavity was not opened.

At the executive session Dr. T. MITCHELL PRUDDEN was elected President, and Dr. W. P. NORTHRUP Vice-President.

REVIEWS AND BOOK NOTICES.

DISEASES OF TROPICAL CLIMATES. Lectures delivered at the Army Medical School. By WILLIAM CAMPBELL MACLEAN, M.D., C.B., Surgeon-General, late of H.M. Indian Army, etc. London and New York, Macmillan & Co., 1886. Post 8vo, pp. 337, cloth.

The lectures delivered at Netley by Professor MacLean, whose long medical experience in hot climates enables him to speak with authority upon the subject, will be read with pleasure by the profession. The various manifestations of malaria, enteric fever, febricula, relapsing fever, dengue, yellow fever, insolation, bowel disorders, cholera, diseases of the liver, beriberi, and Guinea worm are considered consecutively, the lectures terminating with a farewell address. The statistics, results of clinical and post-mortem observations, discussion of questions of pathology and therapeutics, and observations upon the climate of India, are of more than transient importance. His remarks upon the treatment of cholera acquire special interest from the fact that personal experience as a sufferer dictated the advice as to treatment. Opium early or not at all, an abundance of iced water, even though vomiting seems increased by it, and the entire abolition of stimulants internally, the use of turpentine or chloroform externally to relieve cramps, or the inhalation of a few whiffs of the latter, and rest in a horizontal position, are the main points to be observed in the treatment. Immediately upon the appearance of the first signs of reaction assiduous nutrition should begin, commencing with arrow-root made with water, with beef-tea enemata, and measures directed towards the restoration of the functions of the kidneys. Calomel in large doses is considered objectionable, both on account of the idiosyncrasy of some patients to mercury and because he had seen it cause ulceration of the stomach. The extravagant recommendation of some remedies as specifics seem, in the mind of the author, based upon the fact that "remedies used towards the end of an epidemic often obtain an undeserved reputation,"—a remark which applies in other diseases as well as cholera.

THE SCIENCE AND PRACTICE OF SURGERY. With One Thousand and Ninety Illustrations on Wood, mostly New and Original. By FREDERICK JAMES GANT, F.R.C.S., etc. Third Edition. Revised and much enlarged throughout. In Two Volumes. Pp. 1089, 1183.

The importance of clinical study of life, both under healthy and morbid conditions, is maintained by the author of this handsomely-printed system of surgery, the motive being to keep before the reader the teachings of anatomy and physiology in essential connection with the rational practice of surgery. It is upon the assumption of a deficiency in this regard in others that the author of this work proceeds. The present edition has been carefully revised and a large number of illustrations added. As in former editions, special sections have been prepared or revised by well-known authorities upon their individual subjects. The chapters on Diseases of the Eye, the Ear, and the Teeth have been undertaken respectively by Mr. Henry Power, Senior Ophthalmic Surgeon to St. Bartholomew's Hospital; Mr. W. Laidlaw Purves, Aural Surgeon to Guy's Hospital; and Mr. Charles S. Tomes, F.R.S., Examiner in Dental Surgery to the Royal College of Surgeons. "Diseases of the Throat and Larynx" is contributed by Morell Mackenzie; "Deformities," by William Adams; "Diseases of the Skin," by Malcolm A. Morris; "Diseases of the Female Genital Organs" has been revised with the aid of Dr. Robert Barnes, and "Cleft Palate" by Mr. William Rose. A description of the Sphygmograph and its application was contributed by the late Dr. Mahomed.

The care which has been exercised in bringing this edition to its present position constitutes it a fair expression of modern British surgery. It probably fairly represents the practice of surgery in England, and is consistent in its failure to understand the principles of asepticism in the dressing of wounds, and the revolution which they have achieved in practical surgery. On page 437 the principle of Listerism is said to consist in "the exclusion of air as the infecting agent from the wound," and "the interposition of some positively disinfecting or antiseptic dressing." This view leads to various expedients to keep air from the wound, such as keeping it covered with water or oil, or by the use of the spray, all of which will prove inefficient if the fundamental precaution is neglected, which is the key-note of modern surgery, "make and keep the wound aseptic." Where this is accomplished, antiseptic surgery has been successfully applied; where it fails to be accomplished, and bacterial infection occurs, the application has been faulty.

If the remainder of the work were written up to the standard of Watson Cheyne's article, it would better represent the surgical pathology of to-day. The chapters on inflammation, suppuration, tuberculosis, and hydrophobia need to be revised from this point of view. The propriety of devoting a chapter to rheumatism and gout, or to hysteria or delirium tremens, in a system of surgery, is questionable. Apart from these criticisms, which we feel obliged to make, we find the subject-matter interesting, the illustrations good, and the treatment that which will receive the approval of clinical surgeons generally.

NEW REMEDIES AND CLINICAL NOTES.

To Ascertain if Gangrene is likely to follow Severe Injury of a Limb, Dr. W. Scott Lang advises elevating the injured member in order to render it temporarily anæmic; next applying an elastic bandage or tourniquet for a minute; then lowering the limb and removing the tourniquet; when, "if sufficient circulation remains, the part beyond the seat of injury will blush rosy-red, and will show in an unmistakable manner the condition of the blood-vessels." This expedient was adopted by the writer in a bad case of railway-crush of both bones of the leg, where the limb was almost dangling and apparently hopeless. Under antiseptic treatment (after removal of fragments of bone and securing bleeding points), the boy made an excellent recovery with a useful limb.—*Edinburgh Medical Journal*, January, 1887.

Aconite in the Treatment of Pneumonia.—The treatment of pneumonia by tincture of aconite is not new, but its endorsement by Surgeon J. D. T. Reckett, of the Army Medical Staff (*Indian Medical Gazette*, October, 1886), is so unequivocal that it deserves attention.

For six years nearly every case of pneumonia which has come into his hands has been treated with aconite, and in this period he has had only one case which ended fatally. In adult men of florid complexion, high temperature, rapid and full pulse, and usually dyspnœa and pain, he gives five minims (B. P.)—equivalent to gtt. j–ij, U. S. P.—every two hours with half an ounce of water, until the urgent symptoms are relieved; subsequently wine of ipecac and solution of acetate of ammonium are substituted. Hot poultices of flaxseed are applied, and low diet given. The disease, thus treated, rarely passes into the second stage of red hepatization.

Anisic Acid, a New Antiseptic.—By oxidation of oil of anise, anisic acid is obtained, which is isomeric with methyl-salicylic acid and has germicidal properties. The anisate of soda does not disagree with the stomach, reduces temperature, and increases intravascular pressure. It may be used in surgery as an antiseptic, or in the treatment of acute articular rheumatism as a succedaneum of salicylic acid.—*Rev. de Thèr. Méd.-Chir.*

MISCELLANY.

"Physical Culture in Amherst College," by Dr. Nathan Allen, of Lowell, Massachusetts, was the title of a valuable paper read at the Academy of Medicine upon a subject which is now coming quite prominently before the profession and public. Amherst introduced physical culture twenty-six years ago, and Dr. Allen has been chairman of the committee on that subject of the Board of Trustees during all that time. The paper spoke with authority. The principle determined upon at the start and carried on during the whole time has been—

1st. The putting of the department under the care of a competent physician, who was a member of the faculty and on equal standing with the other professors. This person also gave lectures on hygiene and human physiology.

2d. A personal investigation, accompanied by measurements, to see the departure from the normal standard of the individual, and also if there was a physical condition which might prevent his taking exercise in any form.

3d. A compulsory attendance upon a certain amount of light gymnastics upon the part of all students whose physical conditions will permit it.

4th. Special exercise is suggested to all who do not come within the limits of the normal standard, having a tendency to bring them up to the standard.

5th. A full and free opportunity for consultation between student and professor on health subjects: indeed, the excuse from college duties on account of sickness is a matter for investigation on the part of the professor.

As a consequence of this, the results have been in every way satisfactory. There are fewer days lost from sickness, fewer students break down during their college course, while the strength and vigor of the men have increased from year to year.

OFFICIAL LIST

OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U.S. ARMY FROM JANUARY 16, 1887, TO JANUARY 29, 1887.

Major W. H. Forwood, Surgeon.—Ordered for duty at Fort Meade, Dakota Territory. S. O. 5, Department of Dakota, January 14, 1887.

Major John Brooke, Surgeon.—Ordered for duty as post-surgeon at Fort Monroe, Virginia. S. O. 10, Division of the Atlantic, January 14, 1887.

Major W. H. Gardner, Surgeon.—Ordered for duty as post-surgeon at Fort McHenry, Maryland. S. O. 10, Division of the Atlantic, January 14, 1887.

Major B. F. Pope, Surgeon.—Ordered for duty at Fort Clark, Texas. S. O. 15, A. G. O., January 19, 1887.

First-Lieutenant Edward R. Morris, Assistant-Surgeon.—Granted leave of absence for one month, to take effect about March 10, 1887, with permission to apply for an extension of twenty days. S. O. 6, Division of the Pacific, January 19, 1887.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U.S. MARINE HOSPITAL SERVICE FOR THE SIX WEEKS ENDED JANUARY 29, 1887.

Wyman, Walter, Surgeon.—Granted leave of absence for three days, January 14, 1887.

Wheeler, W. A., Passed Assistant-Surgeon.—To proceed to Erie, Pennsylvania, as inspector, January 12, 1887.